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September 1964

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EVALUATIONS OF SOVIET SURFACE-TO-SURFACE MISSILE DEPLOYMENT 14TH REVISION

A Report of the Deployment Working Group
of the
Guided Missiles and Astronautics Intelligence Committee

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EVALUATIONS OF SOVIET
SURFACE-TO-SURFACE
MISSILE DEPLOYMENT

14TH REVISION

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GUIDED MISSILES AND ASTRONAUTICS INTELLIGENCE COMMITTEE

DEPLOYMENT WORKING GROUP

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MEMBERSHIP

NOTE: All correspondence relative to this report should be directed to the Chairman, Guided Missiles and Astronautics Intelligence Committee (GMAIC).

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PREFACE

This report, published bimonthly by the GMAIC Deployment Working Group (DWG), provides a comprehensive, ready-reference listing of all ICBM, IRBM, and MRBM deployment locations, types of site configurations, photographic references, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Additional data may be added to future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self-sustaining, distribution will no longer be limited to holders of the above report.

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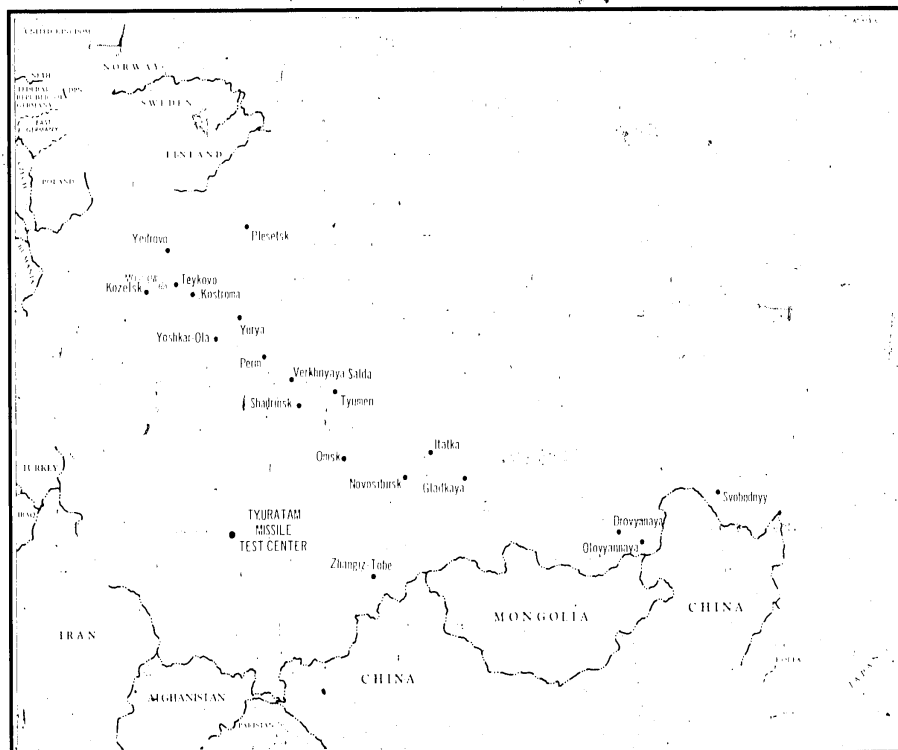


FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

INTRODUCTION

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This report is the 14th Revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group of the Guided Missiles and Astronautics Intelligence Committee. The 13th Revision, dated 1 June 1964, and disseminated under control number [] can be destroyed in accordance with existing instructions for handling [] materials.

[] and continuing analysis of previous missions and other sources, have provided additional information on the Soviet strategic ballistic missile deployment program. The new data are reflected in Table 1 and in the estimated operational status shown in Tables 2, 3 and 4. Cutoff date for information contained in this report is 15 August 1964.

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SOVIET ICBM DEPLOYMENT

A wealth of information gained from [] missions and other sources since our last revision indicates that the Soviet ICBM deployment program continues to be characterized by change, interruptions, and shifts in emphasis. This information provides additional evidence confirming previous assessments as to the extent and pace of ICBM deployment. In addition, significant new aspects have been detected, although the image of the current Soviet deployment program is not clearly defined.

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Significant new aspects identifiable in the deployment of Soviet ICBMs include: (a) confirmation that new construction starts of known configurations, both hard and soft, ceased in [] (b) abandonment of several sites, both hard and soft, while still in an early stage of construction; (c) significant decrease in the number of construction starts during the last half of [] over those identified in the previous [] (d) change in emphasis from soft to hard site construction starts beginning in the [] and (e), perhaps most significant of all, the construction at Tyuratam and at deployed complexes of single-

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silos configurations of several different variations, probably for a new missile system(s).

CURRENT DEPLOYMENT

The number of identified ICBM complexes is now 19, following the identification of a new complex at Zhangiz-Tobe (49°13N 81°09E) containing two probable hard sites of single-silo configuration. Construction of this complex was probably initiated late in [] the first new complex begun since late in [] See Figure 1 for locations of deployed ICBM complexes.

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The 19 complexes now contain a total of 241 confirmed and probable launchers in various stages of construction, of which 146 are soft and 95 are hard. Included in the totals, in addition to the 2 single silos at Zhangiz-Tobe, is what appears to be a 6 single-silo-configured site at Olovyannaya. Eleven of the complexes contain both hard and soft launchers, 4 contain only soft, and 4 have silos only. The number of sites identified at a complex range from a low of one at Omsk to a high of 11 at Yurya. We cannot determine any typical number of sites or launchers which each complex will ultimately contain.

Of the 241 identified launchers, 197 are considered to be operational, including 51 in a hard configuration. In addition, we believe that 19 of the 35 confirmed and probable launchers at the Tyuratam Missile Test Center, including 6 hard, are operational. Included in the total launchers at the TTMTTC are 6 probable single silos under construction, as well as new soft launch areas at Complexes A and G.

The ICBM launch sites have been designated by type, as shown and explained in Figure 2. We are currently unable to determine whether the single-silo configurations identified at Tyuratam, Olovyanaya and Zhangiz-Tobe represent construction and deployment of one or several different types of systems. Neither can we ascertain the final site configuration(s). Therefore we have not added it to Figure 2 and will refer to this configuration(s) for the time being as Type III (single), regardless of the number of silos identified at the site concerned.

Evaluation of all evidence received since our last revision has resulted in changes noted at the following deployed complexes:

ADDITIONS:

OLOVYANNAYA, Launch Group D-4-10), Type III (single), under construction

YEDROVO, Launch Site I (3), Type IIIA, complete

ZHANGIZ-TOBE (New complex), Launch Site A (1), probable Type III (single), under construction; Launch Site B (2), probable Type III (single), under construction

DELETIONS:

GLEADKAYA, Launch Site C (4), Type IIIA, abandoned

KOZELSK', Launch Site C (1), Type IIIB, abandoned

OMSK, Launch Site B (2), Type IIIB, abandoned (previously carried as possible)

TEYKOVO, Launch Site G (7), Type IID, abandoned

The following changes were noted at the Tyuratam Missile Test Center:

ADDITIONS:

LAUNCH COMPLEX A, Launch Site A3 (15), probable Type III (single), under construction

LAUNCH COMPLEX B, Launch Site B2 (16), probable Type III (single), under construction; Launch Site B3 (17), probable Type III (single), under construction

LAUNCH COMPLEX G, Launch Site G5-G6 (12), Type undetermined, under construction; Launch Site G7 (18), probable Type III (single), under construction; Launch Site G8-G9 (19), probable, Type undetermined, under construction

LAUNCH COMPLEX I (14), probable Type III (single), under construction

COMPLEX J, Type undetermined, under construction

LAUNCH COMPLEX K (13), probable Type III (single), under construction

CESSATION OF INITIATION OF TYPE IID AND IIIA SITE CONSTRUCTION

In our last revision we pointed out that we had identified no new construction starts of known configurations since [redacted]

Extensive [redacted] coverage of deployed complexes since [redacted] has failed to reveal

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initiation of any additional sites, and we believe that construction of Type IID and IIA SS-7 sites has stopped. Construction starts of sites for the SS-6 and SS-8 had ceased earlier, of course, as had earlier soft configurations for the SS-7.

SITE ABANDONMENT

Recent coverage of Launch Areas C (4) at Gladkaya, C (1) at Kozelsk and G (7) at Teykovo reveals that these sites have been abandoned in an early stage of construction (Figure 3) and provides further evidence that future deployment will consist of new configurations. Launch Site C (4) at Gladkaya, a Type IIA site, was first observed

photography of [] revealed that the site had been abandoned shortly thereafter. Launch Site C (1) at Kozelsk, a Type IIIB site first observed in [] and Launch Site G (7) at Teykovo, the most recent Type IID site which was begun in [] had both been abandoned when observed on []

In addition, we suspect that work has stopped on one or two more of the Type IIA sites begun during the summer of []. On the other hand, work on the remaining Type IIA and IIIB hard sites still under construction appears to be progressing faster than usual, and most should be completed in less than the two-year average normally associated with construction of these types of sites.

ZHANGIZ-TOBE COMPLEX

The first new ICBM complex initiated by the Soviets since late in [] was identified at Zhangiz-Tobe, 80 nautical miles (nm) south-southeast of Semipalatinsk, on [] (Figure 4). The complex is rail served, and contains a complex support facility (Figure 5) and 2 road-served launch sites located approximately 5 nm apart, each containing

a single launch silo under construction (Figure 6). Construction of the complex support facility was probably initiated late in [] with the first launch site begun early in []. Control centers for either launch site cannot be identified. The prototype for these sites is almost certainly included among the new single silos under construction at the Tyuratam Missile Test Range (see page 10). We believe that this complex heralds the beginning of a new trend in Soviet ICBM deployment, although we cannot identify the missile system to be employed. It is also too early to say how many launch sites this type of complex will ultimately contain.

OLOVYANNAYA COMPLEX

Another probably new concept in Soviet single-silo deployment was identified at the Olovyanaya ICBM Complex on []

This new development is located on the northeast side of the complex, which already contains 3 Type IIA hard sites in various stages of construction, and consists of 6 probable single silos under construction arranged in a circle approximately 6 nm in diameter around a probable support/control facility (Figure 7). This configuration is designated Launch Group D.

The probable support/control facility is located 10 nm northeast of the complex support facility (Figure 8). It consists of 5 barracks-type buildings, 2 small square buildings, and 2 additional structures under construction. There is ground scarring and track activity in the vicinity. Within the probable support/control facility is an area of activity which one member believes is a probable launch silo. This area is identified by a dashed line on Figure 8. There was no evidence of this facility on []

One of the small buildings was present on []

Launch Site D1(4) is located 3.4 nm north of

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the probable support/control facility (Figure 9). It consists of a shallow excavation with probable coring. This activity can be negated on Mission

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on [redacted] first activity was apparent on [redacted]

Launch Site D2' (5) is located 2.4 nm east-northeast of the probable support/control facility (Figure 9). It consists of a shallow excavation and 3 spoil piles. This site can be negated in

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[redacted] First evidence of activity was apparent on [redacted]

Launch Site D3 (7) is located 3 nm southeast of the probable support/control facility (Figure 9). It consists of a graded area containing a shallow circular excavation. There was no evidence of this site on [redacted]

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[redacted] First evidence was apparent on [redacted] and track activity in the vicinity has increased considerably since that time.

Launch Site D4 (8), located 3 nm southwest of the probable support/control facility, can be identified as a silo under construction (Figure 9). It is a structure, approximately 35 feet square, in an excavation. A probable building, 100 by 30 feet, is under construction approximately 700 feet west of the silo. There was no evidence of this site on [redacted]

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[redacted] Activity was first observed in [redacted]

Launch Site D5 (9) is located 3.5 nm west of the probable support/control facility (Figure 9). It consists of a shallow excavation containing possible coring and a 100- by 30- foot probable building under construction. There was no evidence of this site in [redacted]

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First activity was observed on [redacted]

Launch Site D6 (10) is located 4 nm north-west of the probable support/control facility (Figure 9). It consists of a generally square excavation and a spoil pile. Ground scarring and

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track activity are in the vicinity. There was no evidence of this site on [redacted]

[redacted] First evidence of activity was obtained on [redacted]

YEDROVO COMPLEX

Excellent coverage of the Yedrovo ICBM Complex on [redacted] finally solved the enigma of Launch Site 1 (3), revealing that it is a completed Type IIIA site (Figure 10) and that no camouflage or other deceptive measures had been employed to conceal it. The site was first observed on [redacted] and on several subsequent missions. Photographic coverage of this facility was poor, however, and until [redacted] we were unable to ascertain its function.

OMSK COMPLEX

Omsk Launch Site A (1), a Type IIIB site, was covered by good quality stereo photography on [redacted]. This coverage confirmed that the site is complete, revealing an electronic facility similar to the one at Tyuratam Launch Complex F (5), the Type IIIB prototype (Figure 11). Preliminary measurements indicate that the legs of this facility are about 1,250 feet long.

[redacted] coverage of possible Launch Site B (2) at Omsk again revealed no further progress in construction, and we are dropping this site from Table 2.

KOZELSK COMPLEX

[redacted] showed that Launch Site E (5), a Type IIIB site, was complete, including an electronic facility similar to those at Tyuratam Launch Complex F and Omsk Launch Site A (Figure 11).

PERM COMPLEX

We have examined an area of activity at Perm for launch-associated facilities (Figure 12). The majority consider this area as suspect for a single-silo launch site. One member believes that it is a probable launch site.

TYURATAM, MISSILE TEST CENTER

Test Range Facilities

Excellent coverage of the rangehead on [redacted] supplemented by fair coverage on [redacted] later the same month, continues to indicate that the pace of construction at the missile test center is very high and still increasing. There are now 35 confirmed and probable launch points at 11 separate complexes. New launchers include 6 probable single-silo configurations at a total of 5 complexes, 2 new soft launch areas at Complex G, and a probable single soft pad at Launch Complex B. The new construction is intended to support current and future Soviet ICBM and space exploration programs. Single-silo designs are probably development efforts to decrease weapons system vulnerability, but the missile system(s) for which these silos are intended cannot be determined at this time.

At Launch Complex A, a new launch facility designated A3 (15) has been identified approximately 4,300 feet south of Pad A1 (1). It consists of a road-served secured area containing a probable launch silo coring, approximately [redacted] in diameter, in the center of a shallow excavation (Figure 13). The approach road terminates in a loop beside the excavation. A 155- by 50-foot building has been constructed along the approach road.

At Launch Complex B, two probable new launch facilities have been identified. One, designated B2 (16), is located approximately 2,900 feet west of Pad B1 (2). It consists of a road-served secured area containing a probable launch silo under construction, approximately 30 feet in diameter, and a probable semiburied building (Figure 14). A 150- by 50-foot building is located adjacent to the access road. The other new facility, designated B3 (17), consists of a single probable launch pad within a secured area 5,500 feet northeast of Pad B1 (2). The

new pad (Figure 14) is similar in size and configuration to those at Launch Complex C (3). The secured area also contains 2 buildings and a loop road system.

No changes were noted at Launch Site D1 (4). Construction is continuing at Launch Site D2 (9), but the site is not yet complete.

The most significant aspect of the coverage of Launch Complex F (5) is the clarity with which the electronic facility can be observed (Figure 11). The elements of the electronic device are clearly discernible, and what appear to be dome-like silo covers protect the antennas, indicating hardening probably comparable to that of the other site elements.

Construction activity and the expansion of launch facilities at Launch Complex G are continuing at a rapid pace, and appear to be capable of supporting space operations using a booster larger than the SS-6. Launch Site G1/G2 (7), containing 2 rail-served soft pads 900 feet apart, is complete and has been used for firings of a new ICBM which GMAIC has designated the SS-10 (Figure 15). The gantries or service towers at this launch site are about 120 feet tall, as contrasted with the 70-foot tall tower at Pad A1 (1) at Launch Complex A (1). Two rail cars, each approximately 65 feet long, were observed in line between one launch pad and its associated ready building on [redacted]

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The electronic facility associated with this site is L shaped, with base legs 1,300 feet long.

Launch Site G3, G4 (11) is in a late stage of construction (Figure 15). It consists of 2 rail-served launch pads, each approximately 90 feet wide, separated by a distance of approximately 1,900 feet. The sides of the excavation associated with the easternmost pad appear to be surfaced or treated, suggesting blast deflection to the sides of the pad. Each of the 2 mobile gantries in this area is almost 200 feet tall. The rail which enters the launch area branches into 5 or possibly 6 spurs; 3 serve the eastern pad, and the others the western. At least 6 buildings in the launch area have been earth mounded since

of a projected line connecting these 2 areas (Figure 15). The construction area is served by a road branching off the access road to G1. Construction of this road was first observed on

The activity consists of 2 buildings under construction and 3 shallow excavations connected by ditching. A shallow ditch connects this area with G3 (12).

Launch Complex H (8), consisting of 2 launch pads and an electronic facility, is possibly the prototype for a rail-served JCBM launch facility. The complex is complete and had a clean, finished appearance by Mission

(Figure 16). An L-shaped guidance facility with 1,200-foot base lines, similar to the guidance facility detected south of Launch Site D2 in the spring of [redacted] exists to the southeast of the launch area. The interferometers at Site D2 and Launch Complex H are believed to be intended for use with the SS-9.

The layout of facilities indicates that Launch Complex H is probably a soft integral configuration in which most of the launch servicing equipment is permanently installed in bunkered structures near the launch positions, thereby providing some degree of hardening when in Readiness Condition 3. The building located 350 feet north of each launch pad is probably the ready building, with inside dimensions approximately 235 by 50 feet. The size of this facility is adequate to house an initial salvo and a refire missile, allowing a width of 25 feet per missile. The bunkered wing building located approximately 90 feet east and west of each launch pad has an inside dimension approximately 115 by 35 feet. Their function is probably associated with propellant storage and transfer. The bunkered building approximately 100 feet south of each launch point is probably a shelter (120 by 35 feet inside dimensions) for storage of the erector and other equipment.

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At Launch Complex G, 3 new launch areas, designated G5, G6 (12), G7 (18), and G8, G9 (19) respectively, were identified on [redacted]

Launch Site G5, G6 (12), a road-served construction area, is located approximately 5,000 feet west of G1 (7). The first indication of construction was on [redacted]

It contains the excavations for 2 pad areas approximately 600 feet apart (Figure 15). A shallow third excavation containing a small structure is located forward of, and centered between, the 2 original excavations. The 3 excavations are connected by ditching. At least 5 buildings are under construction along the access road to the sites. The areas are reminiscent of the early stage of construction of Launch Site G1/G2 (7).

Launch Site G7 (18), a probable single-silo launcher in a very early stage of construction, is located south of Launch Site G1/G2 (Figure 15). The area includes an access road and probable coring with a diameter of approximately 30 feet.

Launch Site G8, G9 (19) is located 6,500 feet from G1 and 7,500 feet from G2, but to the rear

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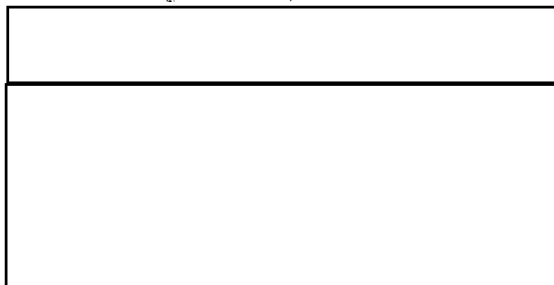
In our last revision we mentioned a suspect new launch facility located between Launch Complexes A and B, consisting of a fenced area 2,500 by 1,900 feet and similar in configuration (but not in size) to Launch Site G3 G4 (11). Construction within the fenced area was first observed on [redacted]

A new launch facility, designated Launch Complex K (13), was identified 1.5 nm west of Launch Complex F (5) on [redacted] (Figure 19). The launch area contains 2 single silos under construction in shallow excavations approximately 1,100 feet apart. The silos are approximately [redacted] in diameter. The access road terminates in a loop alongside the excavations. An electronic facility, located in a secured area 3,000 feet northwest of the launch area, consists of an L-shaped earth scar with base lines approximately 1,275 and 1,345 feet long. This electronic facility is similar to those observed at Launch Complexes D, G and H.

On [redacted] the secured area contained a single launch silo approximately 35 feet in diameter, surrounded by a collar with a diameter of 65 feet (Figure 17). This facility is designated Launch Complex I. The approach road terminates in a loop beside the excavation. A 155- by 50-foot building has been constructed along the approach road. The silo appeared to be in a midstage of construction on Mission [redacted]. The signature of this area is nearly identical to that of single-silo configurations at Tyuratam and Zhangiz-Tobe.

In our last revision we described a second area at Tyuratam suspect as a launch facility. This area is located west of Launch Complex G and north of the complex main road. Mission [redacted] showed that the previously reported secured area now contains 2 drive-in earth-mounded buildings and a drive-through building which is monitor-roofed (Figure 20).

The huge support facility rapidly being constructed west of Launch Complex A since [redacted] is designated Complex J, although construction of launch facilities has not yet begun. The large complex support facility contains a housing area, a powerplant and a construction support area (Figure 18). The latter contains 3 concrete batch plants, more than any other support complex at the rangehead. A new rail spur, over a mile in length, is under construction east of the main rail line; it now terminates northwest of 2 huge 780- by 250-foot buildings, as yet incomplete. Until the construction of associated launch facilities is initiated, it cannot be determined precisely what the role of this complex will be in the Soviet missile and space program. In the past, the appearance of a new support facility has foreshadowed initiation of new launch complexes and the initiation of new programs. The rapid construction rate and the inordinate size of what may be missile assembly buildings is suggestive of a launch complex of a multi-million-pound-thrust booster.



Test Range Activities

Test range ICBM activity at Tyuratam during the period since our last revision continued at a relatively high rate, and included firings of the SS-6, SS-7, SS-9, and the newly-designated SS-10 missiles. Emphasis was on developmental firings of the SS-9 and SS-10 systems.

SS-6 ICBMs were launched successfully to Kamchatka on [redacted] the

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first SS-6 firings since [redacted]. One appeared to be an operational/training-type firing, and the other may have been a test of a space booster.

Two SS-7 missiles were launched during the period. The first firing occurred on [redacted] with launch probably emanating from Launch Area D and apparently reaching Kamchatka successfully. The second, on [redacted] also apparently reached the Klyuchi Impact Area.

SS-9 missiles were launched at an even pace on [redacted]. Five of the 6 firings appeared to have been successful to Kamchatka. The firings [redacted] were intended for the new 7,000-nm extended Pacific Impact Area; the first was successful and the second an early inflight failure, the only detected failure in a total of 10 firings to date. Flim Flam, where available, indicates that Launch Complexes C, D and H were probably involved in these launches.

Three firings of the SS-10 were identified, one each on [redacted]. All appeared to have been launched successfully to the Klyuchi Impact Area on Kamchatka. Flim Flam on the [redacted] shot indicated Launch Area G1/G2 (7) as the launch point. Flim Flam data on the other 2 firings were not available on our cutoff date of 15 August.

COMMUNICATIONS FACILITIES AT DEPLOYED ICBM COMPLEXES

[redacted] revealed communications facilities at the Yoshkar-Ola, Novosibirsk and Tyumen ICBM Complexes, respectively. As is the case with the facility at Verkhnyaya Salda reported in our last revision, these facilities consist of high-frequency receiving antennas oriented to receive communications from the Moscow area. The facility identified at

Tyumen is typical of these installations (Figure 22). It consists of 2 fishbone receiving antennas arranged for diversity reception and oriented due west (toward Moscow), 2 dipole antennas oriented 90/270 degrees, and a control building.

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RESUME OF SOVIET ICBM
DEPLOYMENT PROGRAM

General

Recent evidence indicates the Soviets have initiated new deployment concepts involving changes in basic philosophy. It is still too early to ascertain specifically the extent, pace, and direction of the new deployment program. However, a review of the history of Soviet ICBM deployment to date, together with the current status and identifiable trends, is a basic requirement essential to assessing these new developments. The following resume of ICBM deployment is presented in this light:

Three missile systems, the SS-6, SS-7, and SS-8, are currently operational at deployed sites. Two others, the SS-9 and SS-10, are under development at the Tyuratam Missile Test Center, and deployment of one or both may be underway at the single-silo configurations at Zhangiz-Tobe and Olovyannaya.

SS-6 Program: Plesetsk remains the only complex at which the SS-6 is deployed. Construction of the 3 operational sites (4 launchers) began in mid- [] and all were complete and operational by []. We do not believe that this system is deployed at any other complex in the USSR, or that any additional deployment will occur in the future. We expect that this system will be phased out of the inventory before the end of this decade, when a more sophisticated system with equivalent or greater payload capacity becomes operational.

SS-7 Program: The SS-7 ICBM is the most successful of the currently operational systems and constitutes the bulk of the deployed force. It is deployed at 15 of the 19 complexes in both soft and hard configurations. No new construction starts of either the soft or hard modes have been detected since []. Furthermore, the last soft site initiated was abandoned while still in an early stage of construction.

The same is true for at least one of the last 3-silo hard sites. We believe, therefore, that deployment of the SS-7 missile system in currently operational configurations has stopped. We expect that the system will remain operational throughout the next few years and constitute a large segment of the total operational force; however, the number of soft launchers employing the SS-7 may possibly be reduced toward the end of the decade as significant numbers of more sophisticated systems become operational.

The SS-7 has been deployed in 3 consecutive soft modes at 64 sites. All contain 2 launchers, and all are operational. Differences between the 3 modes appear to relate to improvement in reaction time and handling procedures rather than modifications to the missile system. The most significant identifiable change was the incorporation of an integral fueling system in the so-called canted buildings inboard of the launch pads at the most recent version. Construction of 5 sites of the earliest, or IIA, mode was initiated during the period []

The second, or IIB, mode was deployed during the period [] when construction of 29 sites was initiated. Both the IIA and IIB modes required an average construction time of 15 months. Construction of 31 sites of the latest, or IID, mode commenced in [] following a 6-month break in construction starts. Between [] construction of a total of 29 sites of the IID mode was initiated, the highest sustained rate of construction starts of a given type of site than any yet observed. Only 2 more sites of this type were initiated after []. The last, begun in [], was abandoned while still in an early stage of construction. The earliest IID sites required approximately 12 months to construct; later, however, this time was reduced to about 10 months.

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is underway. We cannot determine, however, the extent of modifications required to permit compatibility of the 2 systems.

SS-10 Program. We believe that deployment of the SS-10, currently under developmental testing at Launch Complex G at Tyuratam, may be imminent if not already underway. However, we cannot identify any specific deployment sites which we believe are for this system. There is no evidence that the SS-10 can be launched from facilities other than Launch Area G1/G2 at Tyuratam. Furthermore, we do not know the size and characteristics of the missile.

Disruptions in Deployment Program

We have been able to identify three significant periods of interruption in the Soviet ICBM deployment program. The first occurred during the summer of [] and was related, at least in part, to the failure of the SS-8 missile system to meet Soviet test requirements. The second involved a 9-month break in SS-7 hard site deployment during the period []. The third occurred during the fall and winter of [] and probably was related to a decision to cease construction of sites of known configuration for the second generation SS-7, probably in favor of deployment of the third-generation SS-9 and SS-10 systems. We recognize the possibility, however, that SS-7 deployment may continue in a single-silo version.

In retrospect, it appears that the Soviets may have intended to supplement deployment of the SS-7 with significant numbers of the SS-8. The unsatisfactory performance of the SS-8 in flight tests during [] apparently caused the Soviets to reevaluate their entire program. SS-8 deployment was curtailed, sites in an early stage of construction were abandoned, and one complex was converted to the SS-7 system. Beginning in [] the SS-7 was deployed in significant numbers in a new soft configuration. It is probable that this phase of

SS-7 soft deployment, on the scale observed, partially compensated for the cutback in the SS-8 deployment program.

The 9-month interruption in hard site deployment between [] is difficult to explain because of the obvious Soviet requirement for a greater degree of survivability for its deployed ICBM force. The most reasonable explanation appears to be that improvements or modifications to the earlier deployed hard version were under development, possibly to accommodate the SS-9. Another, less likely, explanation is that the relatively fast pace at which the SS-7 IIC sites were deployed between late summer of [] required the services of all available construction crews.

The interruption in the deployment program beginning in the fall of [] is almost certainly related to a decision to cease new construction of known configurations, and to commence construction of sites probably to accommodate at least one or both of the two new systems (SS-9 and SS-10) under development at Tyuratam. The identification of a new-type complex at Zhangiz-Tobe, together with the new single silos observed at Tyuratam and Olovyannaya, indicates a major change in direction of Soviet deployment philosophy.

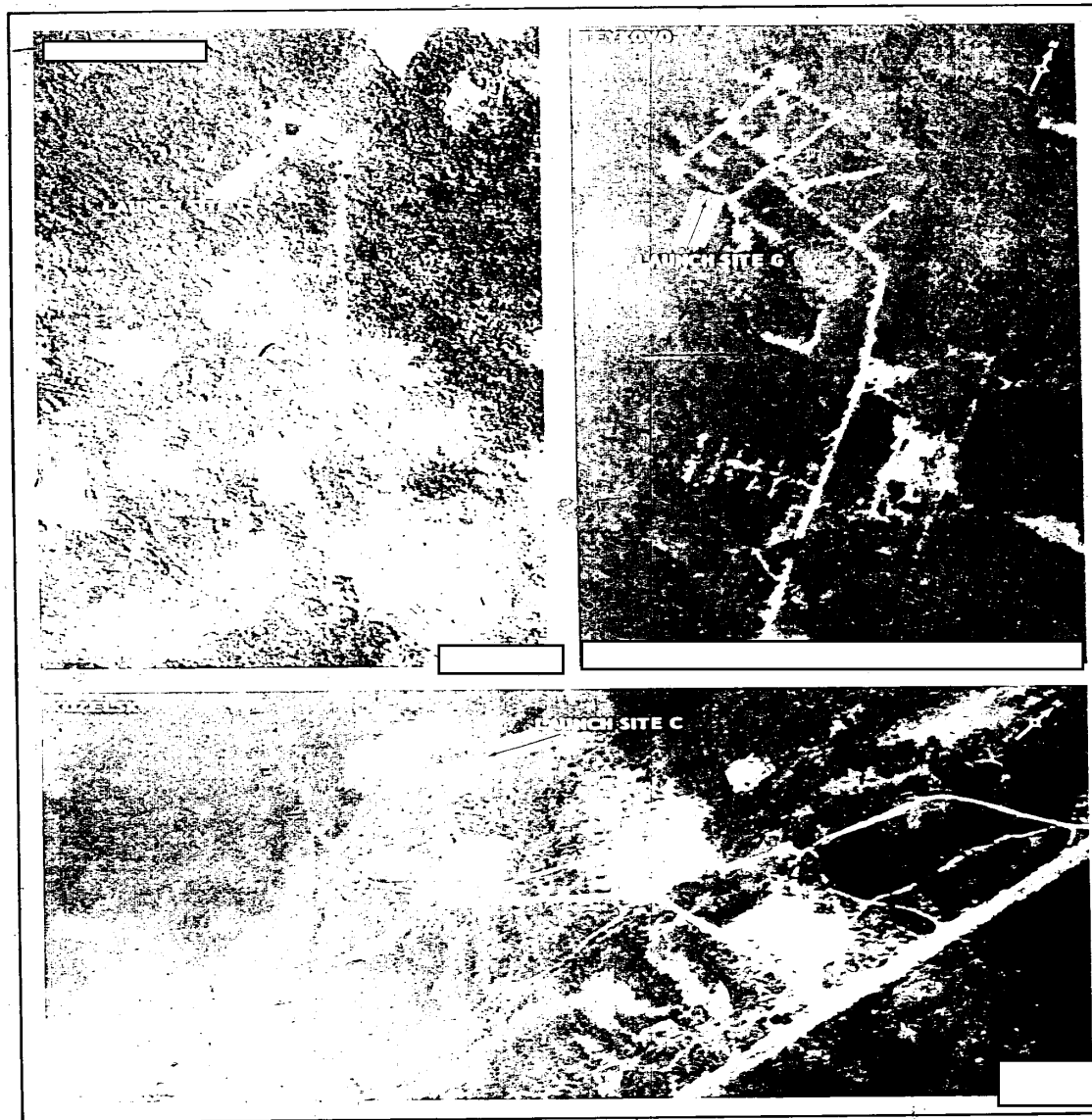
Pace and Extent of Deployment

The pace and extent of Soviet ICBM deployment, from its inception in 1957 to date, is depicted in terms of launcher starts and completions in the chart below. 1. Completions of launchers still under construction are projected through 1965, when all should be complete. Start figures include 6 sites (13 launchers) which were abandoned prior to completion. Of the total force of 241 launchers identified at deployed sites, 95

(approximately 40 percent) are in a hard configuration. Of the total force of 197 launchers currently operational, 51 (approximately 25 percent) are in a hard configuration.

	STARTS			COMPLETIONS		
	Soft	Hard	Total	Soft	Hard	Total
1957	4	0	4	0	0	0
1958	0	0	0	0	0	0
1959	2	0	2	0	0	0
1960	12	0	12	4	0	4
1961	42	30	72	10	0	10
1962	61	24	85	10	3	13
1963	22	36	58	68	24	92
1964	0	8	8	24	15	39
1965	--	--	--	0	23	23
Totals	156	98	254	146	95	241

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FIGURE 3. ABANDONED ICBM LAUNCH SITES AT GLADKAYA, KOZELSK, AND TEYKOVO.

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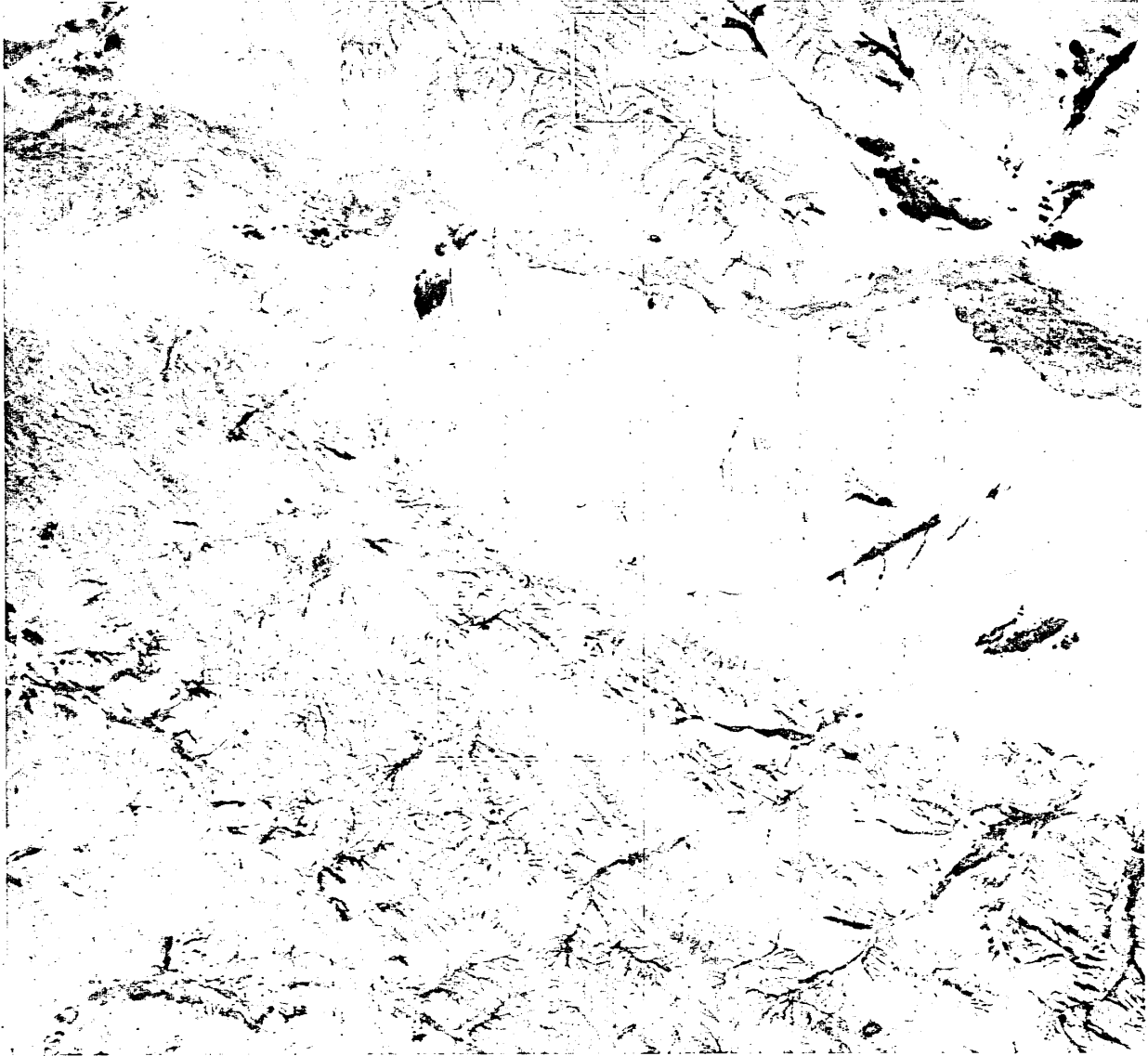


FIGURE 4. NEW ICBM

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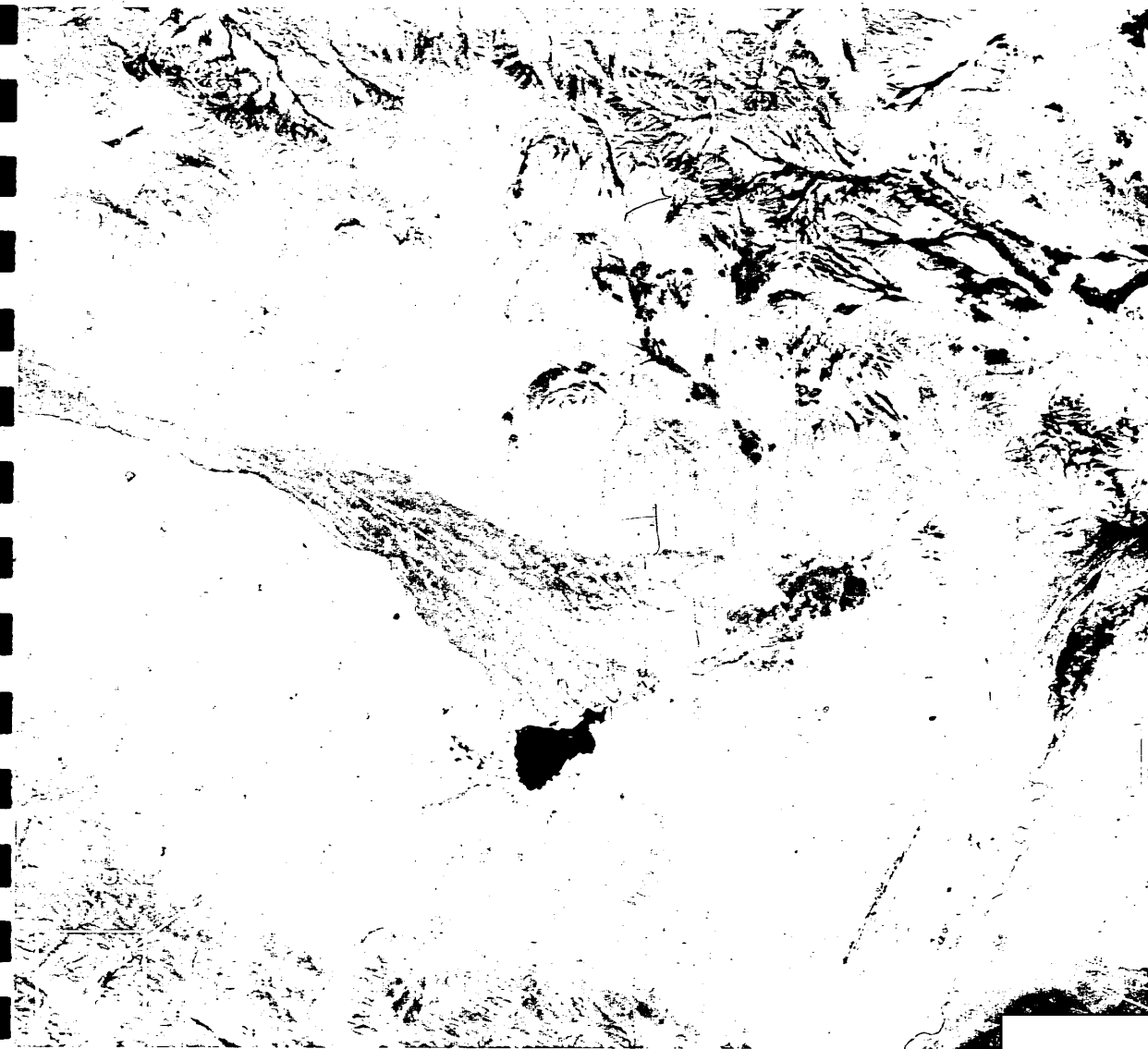
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COMPLEX, ZHANGIZ-TOBE.

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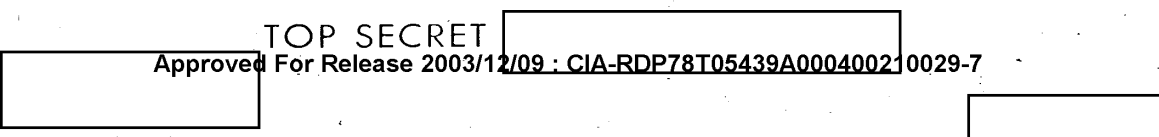
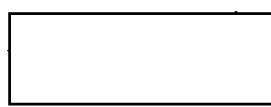
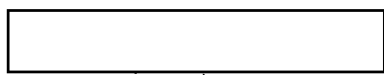


FIGURE 5. COMPLEX SUPPORT FACILITY, ZHANGZITÖBE.



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FIGURE 7. LAUNCH

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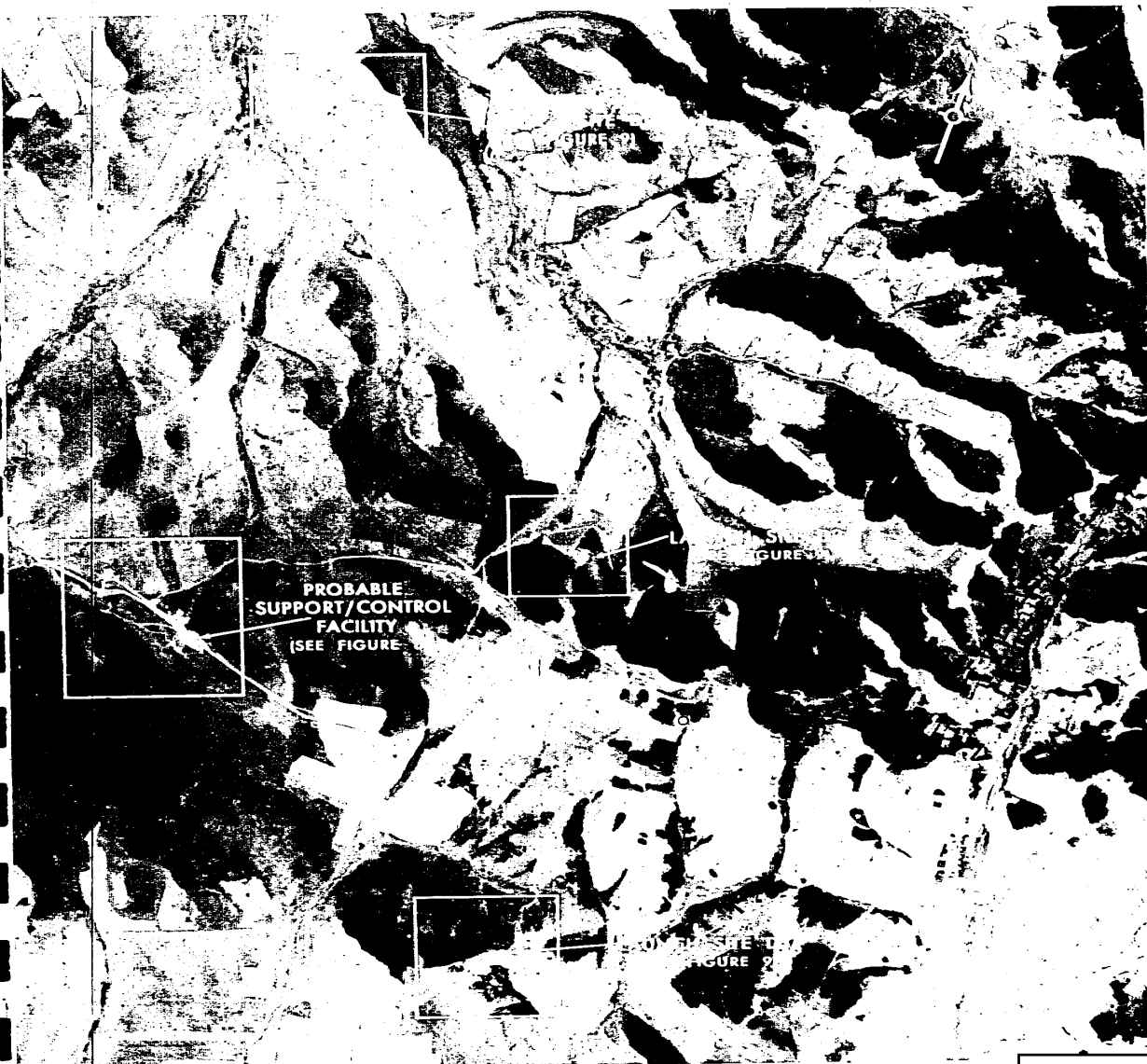
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GROUP D, OLOVYANNAYA.

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FIGURE 8. PROBABLE SUPPORT CONTROL FACILITY, LAUNCH GROUP D, OLOVYANNAYA.

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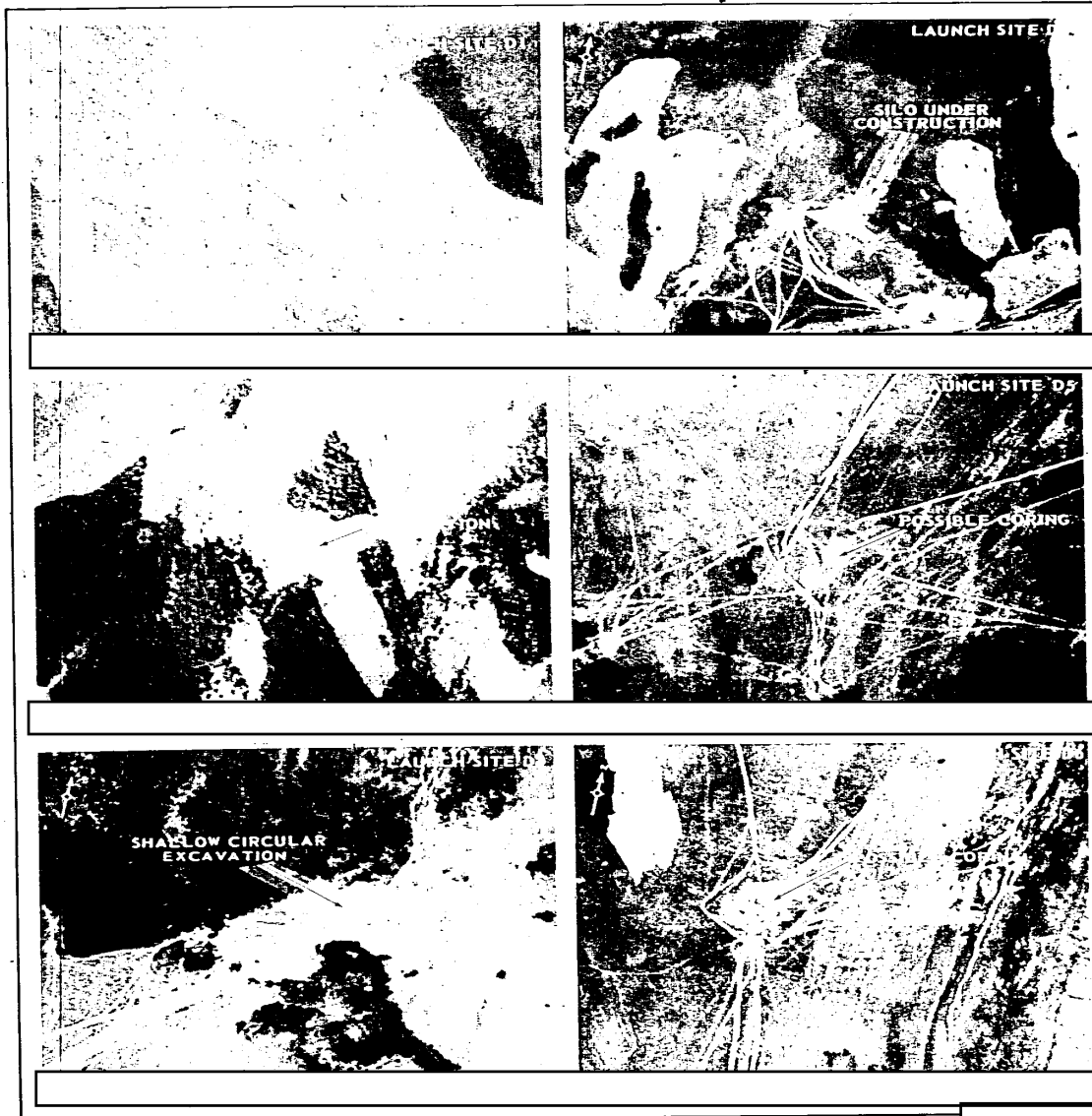
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FIGURE 9. LAUNCH SITES D1 - D6, 18, LAUNCH GROUP D, OLOVYANNAYA.

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FIGURE 10. LAUNCH SITE 1.3. PEDROVO.

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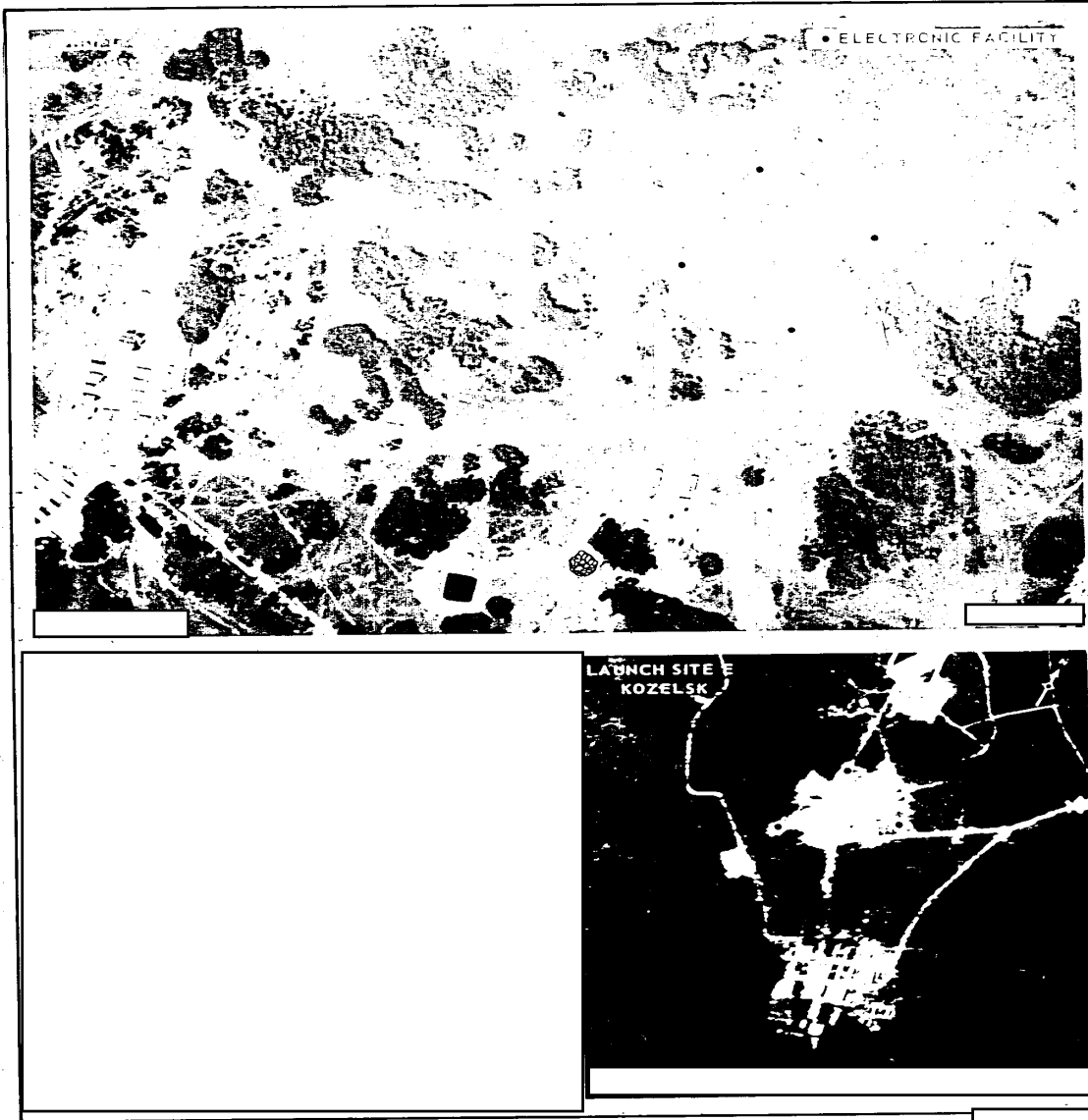
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FIGURE 11. LAUNCH SITE A-1, OMSK; LAUNCH SITE E-15, KOZELSK; AND LAUNCH COMPLEX F-5, TYURATAM.

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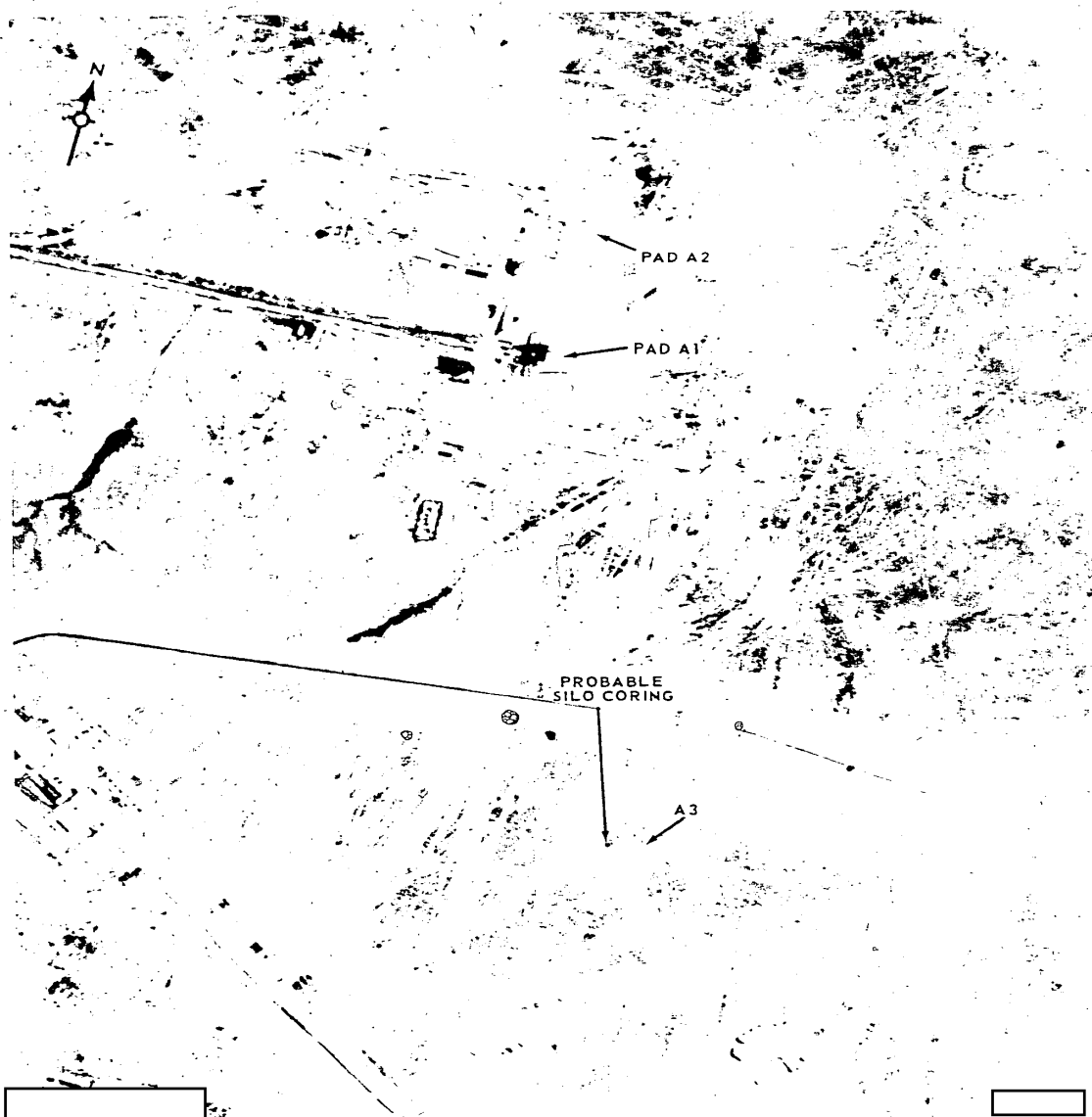


FIGURE 13. LAUNCH SITE A3 (15), TYURATAM.

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FIGURE 14. LAUNCH SITES B2 (16) AND B3 (17), TYURATAM.

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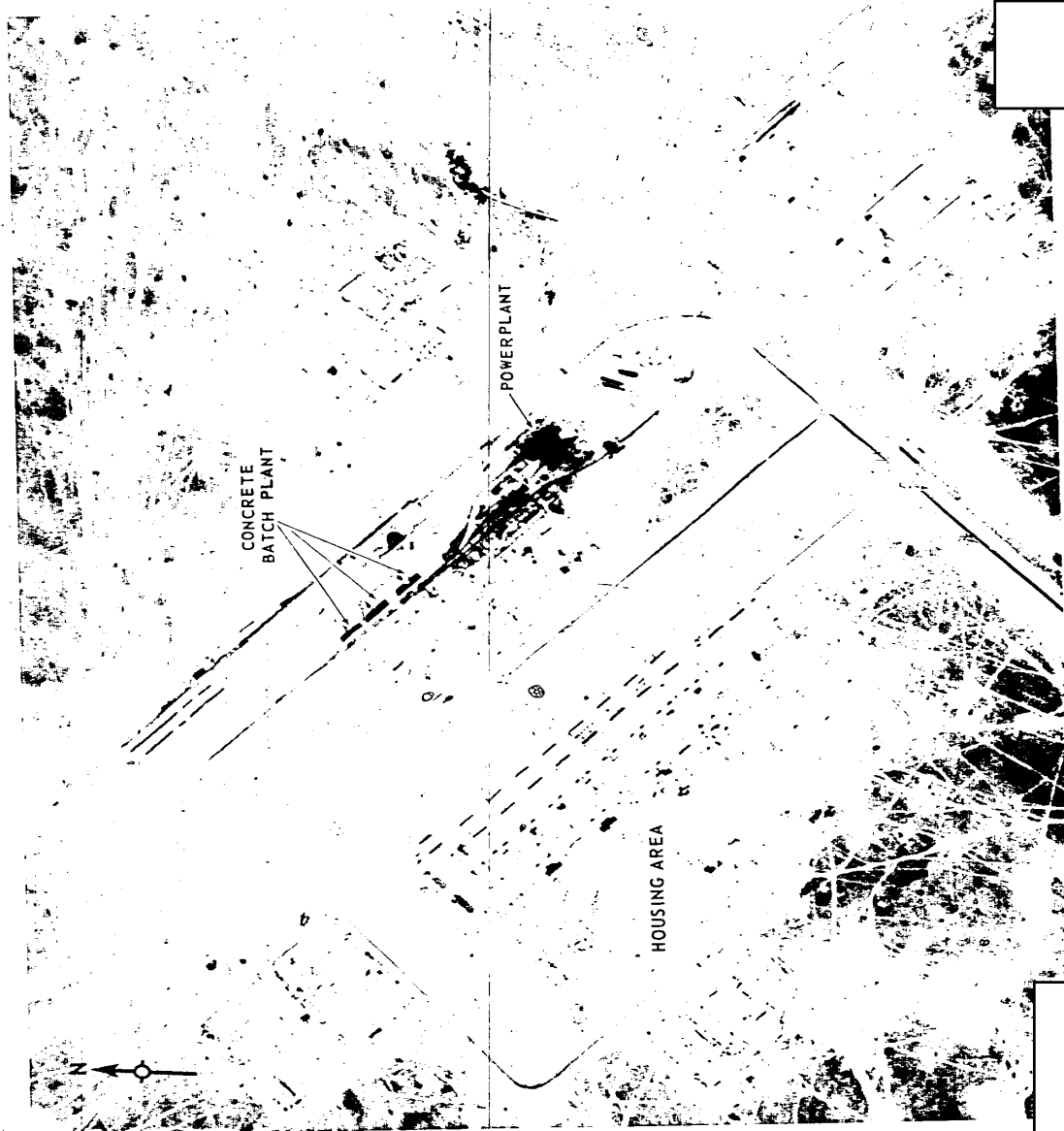


FIGURE 18. COMPLEX J, TYURATAM.

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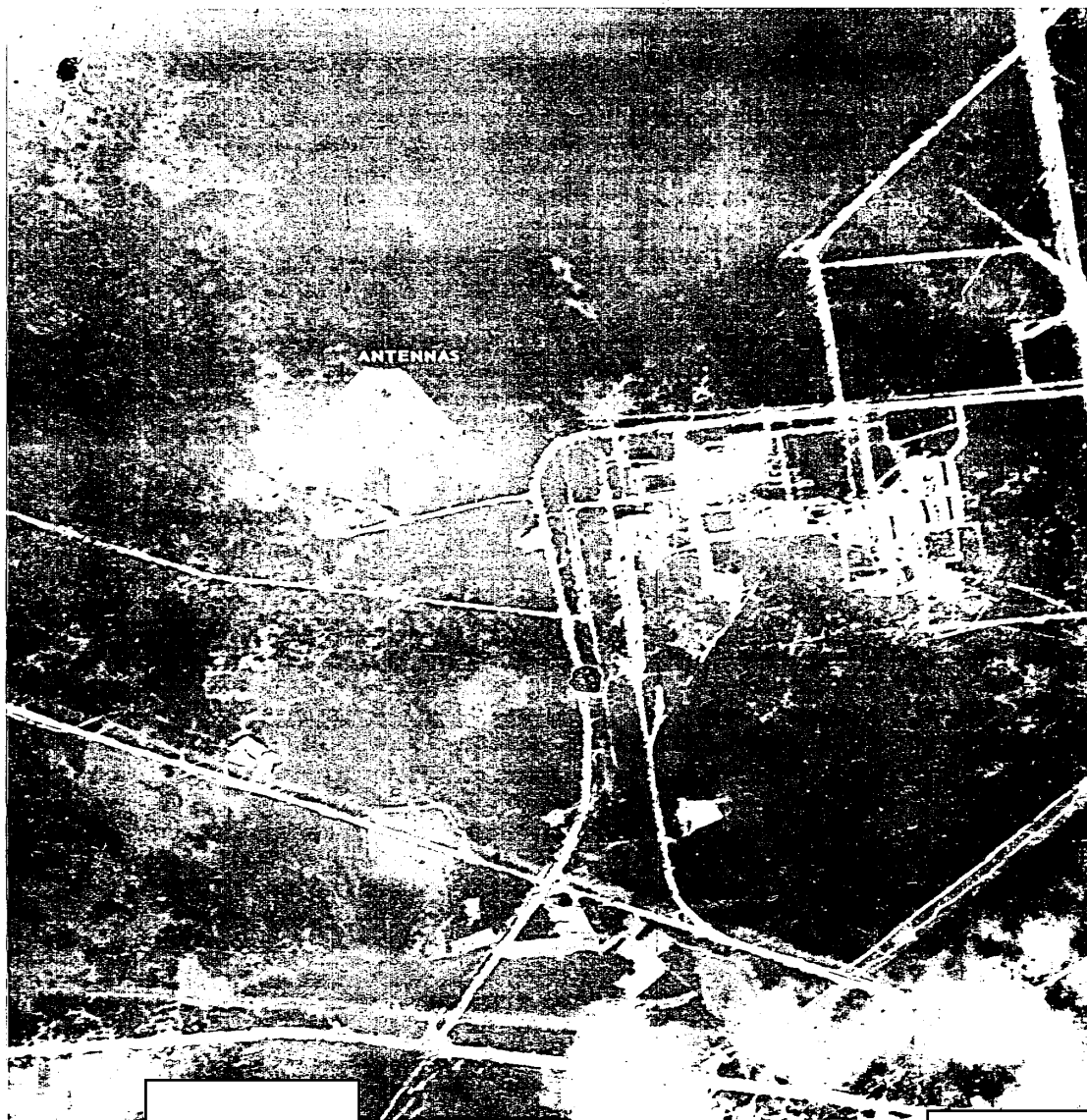


FIGURE 22. HIGH-FREQUENCY RECEIVING ANTENNAS FISHBONE, TYUMEN.

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SOVIET IRBM/MRBM DEPLOYMENT

[] coverage since our last revision covered a majority of all deployed IRBM and MRBM complexes. No significant changes in the composition or activities of the Soviet IRBM/MRBM force were noted. Within complexes there is still no indication of any mixing of systems; all remain exclusively either IRBM or MRBM equipped.

25X1D A hard IRBM launch site was newly identified near Bolshaya Kamenka (51-45N 45-41E) on [] and a soft IRBM launch site was newly identified at Traktovyy (53-25N 62-23E) on [] the same month. A new surface-to-surface launch facility was observed at Plesetsk on Mission [] and a launch facility near Sovetskaya Gavan was confirmed as the probable launch point for MRBM training firings to Kamchatka in [].

25X1B identified at Moloskovitsy MRBM Launch Site [] and at the Vainode IRBM Launch Site. Numerous fixed field sites were newly identified, bringing the total to 50.

A total of 195 MRBM/IRBM sites with 759 launchers has been identified to date. Of the 759 launchers, 733, including 121 in a hardened configuration, are estimated to be operational.

In this revision we have divided the Summary Evaluation of Soviet MRBM/IRBM Deployment (Table 3, 13th Revision) into two separate tables: Table 3, Summary Evaluation of IRBM Deployment; and Table 4, Summary Evaluation of Soviet MRBM Deployment. A listing of identified fixed field sites has been added as Table 5. A Table 6, Composition of IRBM/MRBM Complexes has also been added. See Figure 30 for locations of deployed IRBM/MRBM complexes. Typical configurations of the launch sites are shown in Figure 31.

SOFT SITES

Plesetsk

25X1D A unique development was observed in [] at the ICBM complex at Plesetsk. A new soft surface-to-surface launch facility, unrelated in configuration to any previously identified ICBM site, was observed in a midstage of construction (Figure 32). The 2 pads do not as yet appear to be surfaced. A medium-sized building with a raised roof at one end is inboard of each pad, and separated from it by a linear revetment. These 2 buildings are connected by cross-shaped scarring to a third building midway between the pads. A possible check-out or missile-ready building and one other small building are across the access road, to the west of the site.

This facility bears a close resemblance to Launch Site 5C1 at the Kapustin Yar Missile Test Center (Figure 33), although the 2 facilities are not identical. In addition, the general configuration suggests a relationship to the Soviet IRBM sites observed in Cuba in [] (Figure 34). These similarities indicate that this site is IRBM rather than ICBM related. The function of this new launch facility cannot yet be determined, but we do not believe that its primary purpose is to serve as an operationally deployed IRBM site.

Sovetskaya Gavan

25X1D Since [] a total of 13 MRBM firings to the Kamchatka Impact Area has been detected. All originated in the Sovetskaya Gavan area, but the launch area was not identified until []. That mission revealed a possible launch facility near the Sovetskaya Gavan/Vainino Airfield. Mission [] confirms that this facility is an MRBM launch site with 4 pads arranged on an irregular road pattern (Figure 35). Activity

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is observed for the first time in the form of vehicles on a parking apron. No erectors are discernible on any of the pads. The appearance of the launch facility has not changed since

The site can be negated on [] photography of [] and first appeared on [] coverage of []

The site is located about 900 miles from the Kamchatka Impact Area. We continue to believe that the primary purpose of this site is for training rather than operations, although missiles could be launched from here to targets in Korea and Japan.

Sites Lacking Usual Facilities

[] a newly identified completed Type III IRBM launch site with [] was observed at Traktovyy (Figure 36). This site is singly deployed, has no support facility, and is very similar to 8 other singly deployed IRBM/MRBM sites that have no associated housing or support facilities. The launch site is located approximately 6.6 nm southwest of Traktovyy. The other sites in this category are Bayram-Ali, Kraskino, Marina Gorka, Ramye, Rozhdestvenka, Sledyuki, Uzhgorod, and Zhuravka. We are still unable to determine their operational status, or their place in the deployment pattern.

HARD SITES

Bolshaya Kamenka

The recently discovered site at Bolshaya Kamenka (Figure 37) is something of an enigma. The site was identified in [] and can be negated in [] It may be intended as a typical 3-silo IRBM site. The large excavation, with a small additional effort, could accommodate 3 silos plus the normally associated control bunker and other structures. However, construction procedures at the site to date do not appear to have followed usual Soviet practice. The only

silo present appears to have been brought to about midstage, and there is no evidence of other silos; or the control bunker. At this stage of construction at a typical IRBM hard site, all 3 silos and the control bunker would be visible. The unused or inactive appearance of the launch site leaves its future status in doubt. Apparent construction activity in the site support facility is not compatible with the inactive appearance of the launch site. [] shows that both the launch site and site support facility are probably inactive. No activity is observed in the launch area and the new road under construction between the launch area and the Pokhaninovka-Bolshaya Kamenka highway has not been extended. We cannot explain the inconsistencies between this facility and the usual hard IRBM site; therefore we are unable to ascertain whether this facility represents a new trend in IRBM/MRBM deployment.

25X1D FIXED FIELD SITES

[] the first example of what is now termed a fixed field site was identified near the Anastasyevka MRBM Complex. Identification was due mainly to the similarity between it and the Sagua La Grande No 1 MRBM Field Site in Cuba. Since that time 50 such sites have been located in the USSR on [] photography, some of which have been in existence since [] Most of these newly identified sites, however, have been constructed during the first half of []

The fixed field sites are characterized by an irregular road pattern, generally utilizing existing road networks which are widened in places to form round, elliptical, or rectangular launch sites; there are many variations from Launch Area 2G at Kapustin Yar, which probably was the prototype for the first fixed field sites. The number of pads or clearings varies from 1 to 4, with a wide variety of configurations.

The distances of the fixed field sites from the nearest soft site vary from less than one nm to approximately 25 nm. In some instances, movement from the soft site to the nearest fixed field site would require transit through towns or villages.

25X1D [] revealed an unidentified object on 3 of the 4 pad clearings at the Anastasyevka Fixed Field Site. Two probable

25X1D ready tents or buildings are positioned in a clearing along the large loop road. []

25X1D [] these 2 probable ready tents or buildings are no longer present.

25X1A The purpose of these sites is still undetermined. Continuing analysis confirms that all sites probably do not serve the same purpose. Although some sites may actually represent the alternate reserve positions referred to in [] many, because of their location near permanent sites, would make poor alternate positions. Some of the older sites may represent early deployment of the SS-3 system. Field training for crews appears to be a logical function of many of the pads.

25X1D In any event, a capability of MRBM units to fire from hastily prepared positions was confirmed in Cuba in [] and we believe that all such units currently are capable of moving to, and firing from, these fixed field-type positions.

25X1B []

25X1B []

KAPUSTIN YAR MISSILE TEST CENTER

Test Range Facilities

[] were the only missions which obtained significant coverages of the Kapustin Yar Missile Test Center since our last revision.

Launch Area 1C (Figure 40). Several possible vehicles and the rail-served erector launcher are visible on the old pad on Mission

[] The 2 new launch positions observed on [] are still under construction. They have an approximate 525-foot separation and are both rail served by new spurs from the rail line leading to the launcher/erector on the old pad. The fencelines are being extended to include these new launch positions. There were no apparent changes in facilities in the checkout area since []

Launch Area 2C (Figure 40). [] revealed a possible missile exercise underway. An unidentified object or objects are located at the center of the northern pad, and several

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vehicles or pieces of equipment are on the southern pad.

25X1D

Launch Area 3C (Figure 40). [] revealed a probable vehicle approximately 65 feet long on the launch pad. []

25X1D

revealed a probable missile exercise underway. An unidentified object or objects are located at the center of the pad, and several vehicles or pieces of equipment are present on the pad.

25X1D

Launch Site 4C-1 (Figure 41). Mission [] revealed that the structure over one of the forward silos, first observed on Mission [] is still present.

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25X1D

Launch Site 4C-2 (Figure 41). Two of the 3 silos are open on []. An object approximately 65 feet long is on the road at the entrance to the area.

Launch Site 5C-1 (Figure 42). Nine vehicles are observed at the site, and an object approximately 55 feet long is on the southern pad on [].

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25X1D

Launch Site 5C-2 (Figure 42). Mission [] again confirms that this site is abandoned.

A new rail spur under construction branches from the rail line serving Launch Area 1C, immediately west of the Launch Complex C operations control center, and extends to the former support area for Launch Area 4C (Figure 43). Roadbed construction terminates at the road serving Launch Areas 4C and 5C.

25X1D

[] also shows new construction scarring west and north of the rail-served probable missile assembly and checkout area approximately 5 nm north of Launch Complex C.

Test Range SSM Activity

The firing of surface-to-surface missiles at Kapustin Yar increased significantly beginning [] after relatively light activity during []. Multiple firings on [] suggest a probable SRF demonstration.

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Launches on this date included two SS-3 missiles, and an SS-4.

Activity for the period included a total of four SS-3 launches which, coupled with previous firings of this vehicle in [] represent the first firings of this system since the fall of []. The reason for these firings cannot be determined. We believe the SS-3 is obsolescent and that few, if any, remain deployed.

SS-4 activity between [] was high, with a total of 12 launches detected. SS-5 activity included 2 launches in [] at least one of which was the operational training type. These were the first firings of this vehicle detected since [].

Probably the most significant range activity involved the continued testing of the new missile which we noted in our last revision, and what are probably initial tests of yet another surface-to-surface missile, beginning on []. In the 13th Revision we noted that a ballistic missile was launched successfully to a range of 440 nm on []. This operation appeared similar to a possible firing to at least a 300-nm range conducted on [] and an apparent launch failure or cancellation on []. Similar activity surrounded the launches of what appeared to be the same vehicle on []. The launches of what may be yet another new surface-to-surface vehicle were detected on []. Firings of both series have involved ranges of 300 and 440 nm. Whether these represent half or full range firings cannot be determined at this time.

In addition to the activity described above, there were 35 operations of an undetermined nature during the period [] some of which may have resulted in launches of short range missiles.

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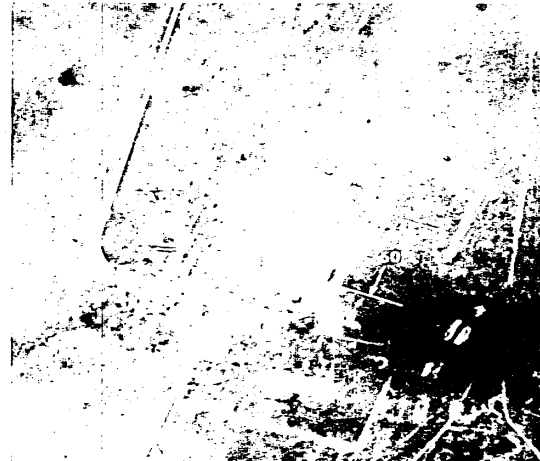
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FIGURE 32. UNIDENTIFIED-TYPE SOFT SURFACE-TO-SURFACE MISSILE LAUNCH FACILITY, PLESSETSK.



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FIGURE 33. LAUNCH SITE 5C1, KAPUSTIN YAR.



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FIGURE 34. IRBM LAUNCH SITE, GUANAJAY, CUBA.

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FIGURE 35. SOVETSKAYA GAVAN MRBM LAUNCH SITE.

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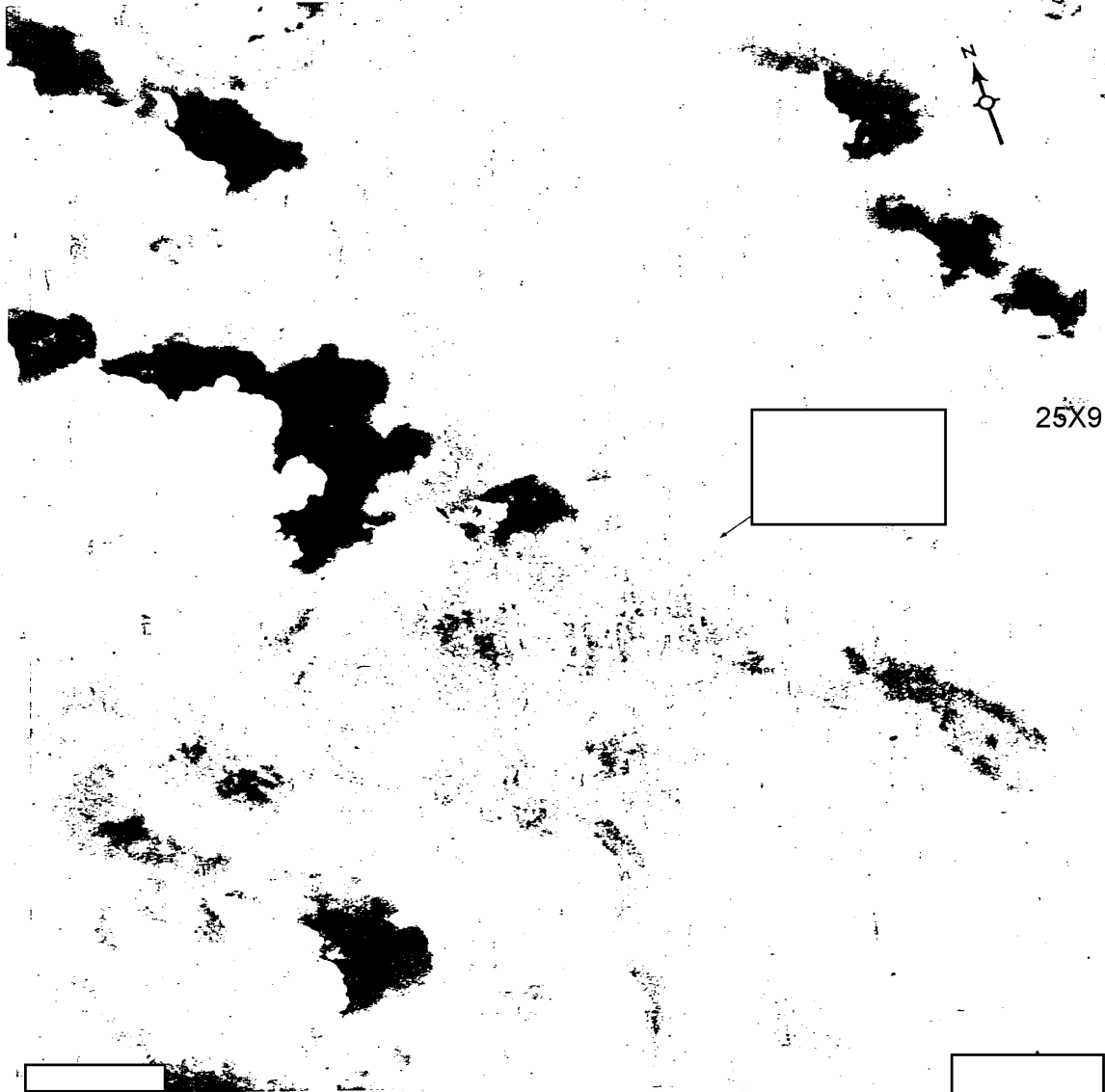


FIGURE 36. TRAKTOVYY IRBM LAUNCH SITE.

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FIGURE 37. BOLSHAYA KAMENKA IIRBM LAUNCH SITE.

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FIGURE 39. VAINODE IRBM LAUNCH SITE.

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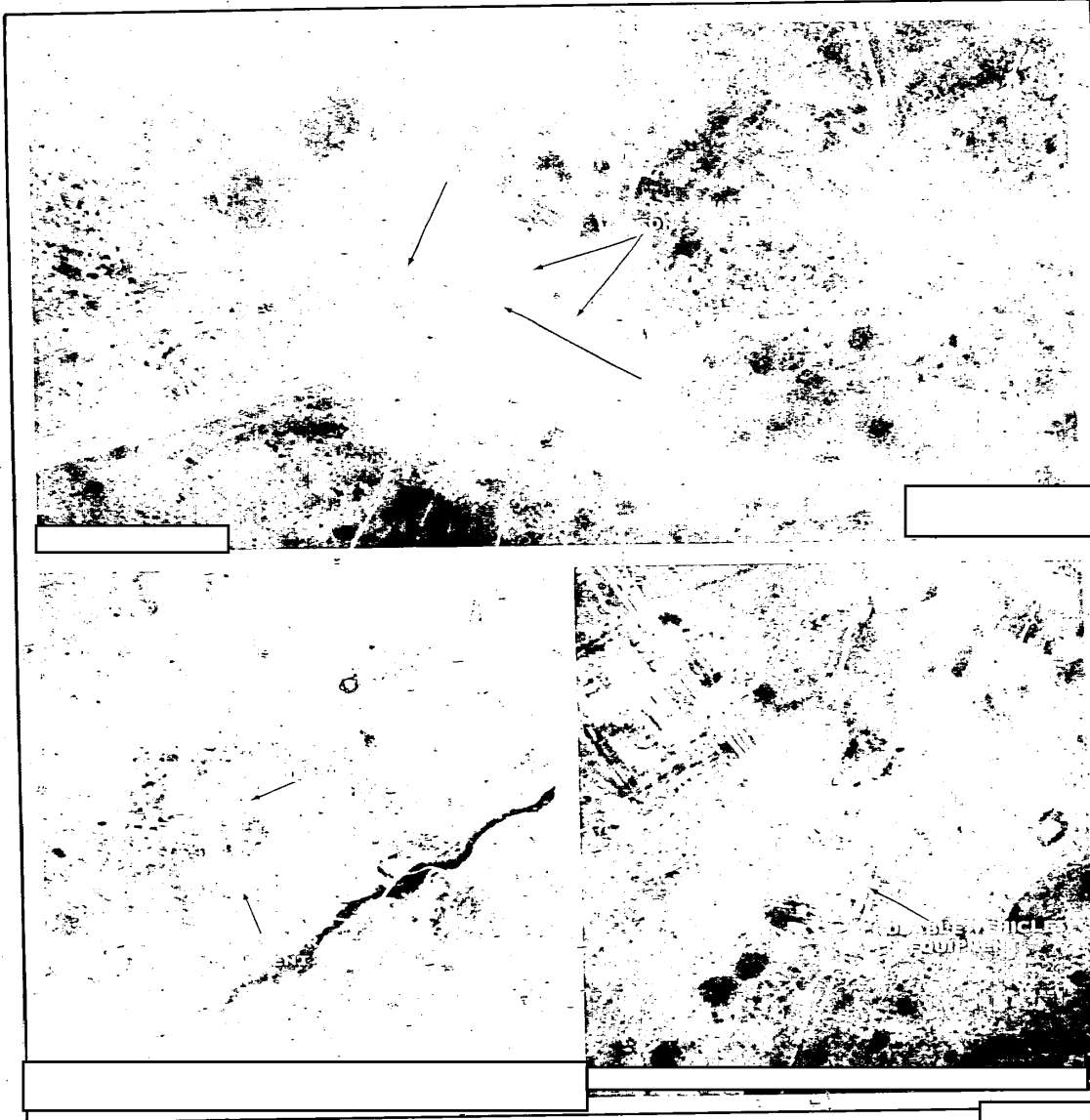


FIGURE 40. LAUNCH AREAS 1C, 2C, AND 3C, KAPUSTIN YAR.

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FIGURE 41. LAUNCH SITES 4C1 AND 4C2, KAPUSTIN YAR.

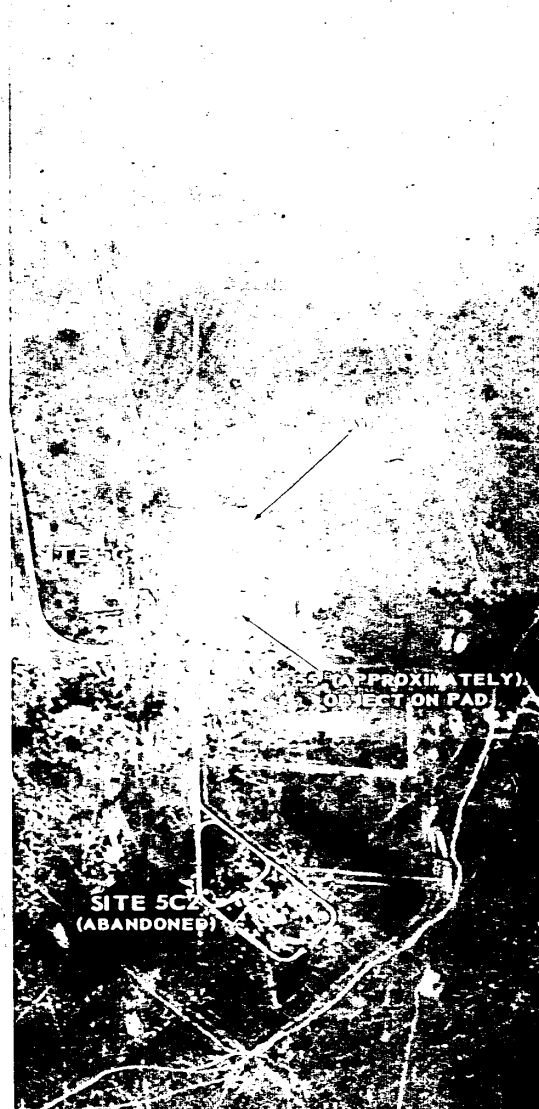


FIGURE 42. LAUNCH SITES 5C1 AND 5C2, KAPUSTIN YAR.

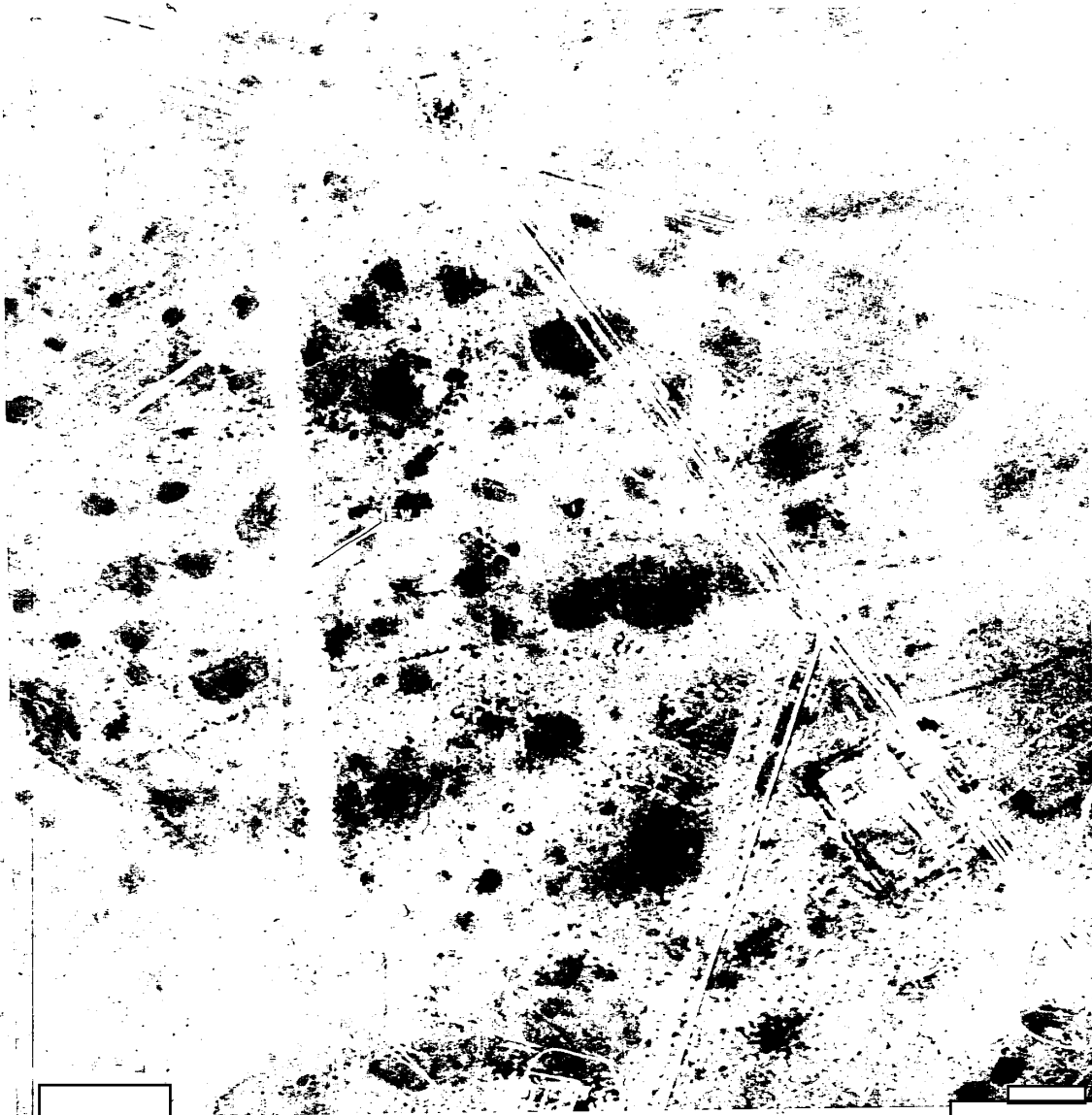
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FIGURE 43. NEW RAIL SPUR UNDER CONSTRUCTION AT LAUNCH COMPLEX C, KAPUSTIN YAR.

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TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM, IRBM, AND MRBM LAUNCHERS
AT DEPLOYED COMPLEXES*

Type	Sites	Launchers	Operational	U C	Type	Sites	Launchers	Operational	U C
ICBM					MRBM				
I	3	4	4	0	I	84	336	336	0
IIA	5	10	10	0	II	53	212	212	0
IIB	29	58	58	0	IV	21	84	76	8
IIC	7	14	14	0	TOTAL	158	632	624	8
IID	30	60	60	0	IRBM				
IIIA	26	78	45	33	III	16	64	64	0
IIIB	3	9	6	3	IV	21	63	45	18
III (Single)	3	8	0	8	TOTAL	37	127	109	18
TOTAL	106	241	197	44	GRAND TOTAL	195	759	733	26

*See Tables 2, 3, and 4 for details. Figures include three launch silos at Type III ICBM and Type IV IRBM sites, and four launch silos at Type IV MRBM sites.

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TABLE 2 (Continued)

Location*	Coordinates	Type of Site	Number of Launchers		Last No.	Estimated Quarter Site Operational				Estimated Status
			Soft	Hard		1st	2nd	3rd	4th	
ORSA Site A (1)	55 09N 21 34E	HH								Operational
PLUM Site A (1)	52 41N 56 11E	HH	2							Operational
Site B (2)	52 44N 56 53E	HH	2							Operational
Site C (3)	52 58N 56 02E	HH	2							Operational
Site D (4)	52 42N 55 47E	HH	2							Operational
Site E (6)	52 43N 56 09E	HH	2							Operational
Site F (4)	52 41N 56 00E	HV		1						Operational
PLESTON Site I (1)	62 56N 40 22E	I		1						Operational
Site J (2)	62 56N 40 32E	I		1						Operational
Site K (3)	62 56N 40 41E	I		1						Operational
Site L (4)	62 56N 40 42E	HV		1						Operational
Site M (5)	63 01N 40 52E	HH	2							Operational
Site N (3)	63 01N 40 53E	HV		1						Operational
Site O (6)	62 51N 40 42E	HC	2							Operational
Site P (8)	62 51N 40 23E	HC	2							Operational
SHADRINK Site A (1)	56 08N 63 51E	HV		1						Operational
Site B (2)	56 10N 63 02E	HV		1						Operational
Site C (3)	56 07N 63 52E	HV		1						Operational
SAGBDAVA Site A (1)	51 55N 128 10E	HH	2							Operational
Site B (3)	51 49N 128 10E	HH	2							Operational
Site C (2)	51 53N 128 23E	HH	2							Operational
Site D (4)	52 56N 128 07E	HH	2							Operational
Site E (6)	51 45N 128 00E	HH	2							Operational
Site F (5)	51 52N 128 11E	HH	2							Operational
Site G (2)	51 58N 127 56E	HV		1						Operational
Site H (8)	52 03N 128 00E	HH	2							Operational
TEKNOVO Site A (1)	56 55N 40 27E	HH	2							Operational
Site B (2)	56 56N 40 31E	HH	2							Operational
Site C (3)	56 55N 40 17E	HH	2							Operational
Site D (4)	56 58N 40 40E	HH	2							Operational
Site E (5)	56 49N 40 10E	HH	2							Operational
Site F (6)	56 55N 40 24E	HH	2							Operational
TYUMEN Site A (1)	56 52N 65 51E	HC	2							Operational
Site C (2)	56 51N 65 27E	HC	2							Operational

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TABLE 1. (Continued)

Location*	DE Number	Coordinates	Type of Site	Number of Launchers		Last Type	Estimated Quarterly Self Operational				Estimated Status
				Self	Hard		Comet	1st	2nd	3rd	
TURKISH											
Complex A (11)		45-55N 43-21E	I	1		Complete					Operational
A2		45-55N 43-21E	I	1		Complete					Operational
*E A1 (13) Probable		45-54N 43-20E	II (single)	1	1	Complete					Operational
Complex B (12)		46-00N 43-14E	I Prototype	1	1	Mod					Operational
B1 (14) Probable		45-59N 43-13E	II (single)	1		Complete					Operational
B2 (12) Probable		46-00N 43-14E	II (single)	1		Mod					Operational
Complex C (13)		45-48N 43-19E	II Prototype	1		Complete					Operational
C2		45-48N 43-19E	II	1		Complete					Operational
C3		45-48N 43-19E	II	1		Complete					Operational
Complex D (14)		45-59N 43-21E	IIA Prototype	1		Complete					Operational
D2 (8)		45-59N 43-21E	II	1		Complete					Operational
Complex E (15)		45-58N 43-11E	II Prototype	1		Complete					Operational
E2		45-58N 43-11E	II	1		Complete					Operational
E3		45-58N 43-11E	II	1		Complete					Operational
Complex F (16)		46-02N 43-06E	IIIB Prototype	1	1	Complete					Operational
Complex G (17)		46-03N 42-56E	Under	2		Mod					Operational
G3 G4 (11) *		46-03N 42-56E	Under	2		Mod					Operational
G5 G6 (11) *		46-03N 42-56E	Under	2		Mod					Operational
G7 (14) Probable		46-04N 42-56E	II (single)	1		Mod					Operational
G8 G9 (14) Probable		46-04N 42-56E	Under	2		Mod					Operational
Complex H (18)		45-59N 43-13E	Under	2	1	Mod					Operational
Complex I (11) Probable		45-58N 43-06E	II (single)	1		Mod					Operational
Complex J (11) Probable		46-02N 43-03E	II (single)	1		Mod					Operational
TOTALS				124	166	110					

*TDE site designations are indicated in parentheses.

1. DIA includes one additional probable site (self). See introduction page 4.

2. See introduction, page 5.

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TABLE 3. SUMMARY EVALUATION OF SOVIET IRBM DEPLOYMENT.

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
AKTYUBINSK Launch Complex KARAKHOBDA PETROVSKIY	49-58-15N 56-51-15E 50-00-30N 56-58-00E	IV IV	3 3	Mid Mid
BAYRAM-ALI Launch Complex BAYRAM-ALI	37-45-45N 62-11-00E	III	1	Complete
BELOMORSK Launch Complex RADOYE	61-25-45N 31-18-15E	III	1	Complete
FEDOROVKA Launch Complex TRAKTOVAYA	53-25-15N 62-23-00E	III	1	Complete
GELLI Launch Complex KAKASHIRA GELLI PARALL	42-38-45N 47-27-00E 42-26-30N 47-28-30E 42-17-30N 47-26-00E	IV IV IV	3 3 3	Complete Complete Complete
GRANOV Launch Complex GRANOV 1 GRANOV 2 KALNIK	48-56-45N 29-30-15E 48-50-00N 29-28-45E 48-59-30N 29-21-45E	III IV IV	1 3 3	Complete Complete Late
KROLEVETS Launch Complex KROLEVETS 1 KROLEVETS 2 BEREZA	51-36-45N 33-29-30E 51-40-45N 33-31-15E 51-43-45N 33-43-45E	III III III	1 1 1	Complete Complete Complete
LEBEDIN Launch Complex LEBEDIN 1 LEBEDIN 2 LEBEDIN 2	50-33-00N 31-25-15E 50-35-45N 31-21-30E 50-38-00N 31-27-30E	III III III	1 1 1	Complete Complete Complete
NIGRANDE Launch Complex NIGRANDE SKRNOYA VAINODE	56-31-00N 22-02-15E 56-35-30N 21-49-15E 56-29-30N 21-30-15E	III IV IV	1 3 3	Complete Complete Complete
NOVOSY-SOYEYKA Launch Complex NOVOSY-SOYEYKA 1 NOVOSY-SOYEYKA 2 NOVOSY-SOYEYKA 3	44-11-45N 133-26-15E 44-07-15N 133-28-30E 44-07-30N 133-23-15E	III IV IV	1 3 3	Complete Mid Early
PERVOMAYSK Launch Complex KAMENYY MOST SEMENOVKA 1 SEMENOVKA 2	47-58-00N 30-24-15E 47-58-15N 30-30-00E 47-53-30N 30-58-15E	IV IV IV	3 3 3	Complete Complete Complete

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TABLE 3. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
SARATOV Launch Complex BOLSHAYA KAMENKA	51-45-00N 45-41-30E	IV	3	Undet
SARY OZEK Launch Complex KARA BABAY 1	44-32-00N 77-06-15E	III	4	Complete
KARA BABAY 2	44-31-00N 77-58-15E	IV	3	Complete
KARA BABAY 3	44-30-15N 77-41-15E	IV	3	Complete
SMORGON Launch Complex SMORGON 1	54-31-15N 26-17-30E	III	4	Complete
SMORGON 2	54-26-00N 26-18-30E	IV	3	Complete
SMORGON 3	54-36-15N 26-22-30E	III	4	Complete
TAYBOLA Launch Complex TAYBOLA 1	68-28-00N 33-05-30E	IV	3	Complete
TAYBOLA 2	68-30-30N 33-23-15E	IV	3	Complete
TAYBOLA 3	68-26-00N 33-29-15E	IV	3	Mid
ZHURAVKA Launch Complex ZHURAVKA	54-36-30N 76-38-15E	III	4	Complete

*TDI site designators have been adopted for IRBM Launch Sites.

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TABLE 4. SUMMARY EVALUATION OF SOVIET MRBM DEPLOYMENT

LOCATION*	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	ESTIMATED CONSTR STATUS
AKHTYRKA Launch Complex				
AKHTYRKA 1	50-16-00N 31-50-15E	II	4	Complete
AKHTYRKA 2	50-22-00N 31-57-00E	II	4	Complete
MUKSNE Launch Complex				
LEJASCEMS 1	57-21-00N 26-11-15E	II	4	Complete
RUSKI	57-25-15N 26-50-00E	II	4	Complete
LEJASCEMS 2	57-13-00N 26-33-30E	IV	4	Complete
ANASTASIEVKA Launch Complex				
ANASTASIEVKA 1	18-31-15N 135-37-15E	II	4	Complete
ANASTASIEVKA 2	18-35-15N 135-11-00E	II	4	Complete
BALTA Launch Complex				
BALTA 1	18-01-15N 29-34-00E	II	4	Complete
BALTA 2	18-07-00N 29-34-30E	II	4	Complete
BARANO-ORENBURGSKOYE Launch Complex				
SOFIYE ALEKSEYEVSKOYE	44-16-15N 131-22-30E	I	4	Complete
BARANO-ORENBURGSKOYE	44-19-15N 131-30-15E	I	4	Complete
BELOKOROVICHI Launch Complex				
OLEVSK 1	51-08-15N 28-03-15E	I	4	Complete
OLEVSK 2	51-10-30N 27-59-30E	I	4	Complete
RUDNYA ZLOTINSKAYA	51-05-30N 28-07-30E	IV	4	Complete
BORSIGCHEV Launch Complex				
SKALA PODOLSKAYA 1	48-51-00N 26-08-30E	I	4	Complete
SKALA PODOLSKAYA 2	48-52-15N 26-03-30E	I	4	Complete
BREST Launch Complex				
BREST 1	51-18-15N 21-00-15E	II	4	Complete
BREST 2	51-51-15N 21-01-15E	II	4	Complete
BRODY Launch Complex				
BRODY 1	50-06-00N 25-12-15E	IV	4	Complete
BRODY 2	50-12-16N 25-05-00E	I	4	Complete
BERESTYCHKO	50-20-00N 25-05-30E	I	4	Complete
BYKHOF Launch Complex				
SLEDYUKI	53-11-30N 30-20-30E	II	4	Complete
DERAZHNYA Launch Complex				
DERAZHNYA 1	49-21-00N 27-26-30E	II	4	Complete
DERAZHNYA 2	49-26-15N 27-29-00E	II	4	Complete
KHMELNITSKIY	49-21-15N 27-08-15E	IV	4	Complete

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TABLE 4. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
DISNA Launch Complex				
DISNA	55-35-15N 28-16-00E	I	4	Complete
ZELKI	55-35-15N 28-21-30E	I	4	Complete
BORKOVICHI	55-41-15N 28-27-00E	II	4	Complete
DOLINA Launch Complex				
DOLINA 1	49-03-30N 24-03-30E	I	4	Complete
DOLINA 2	49-06-15N 24-08-30E	I	4	Complete
BOLEKHOV	49-06-15N 23-51-15E	IV	1	Complete
DROGOBYCH Launch Complex				
VEDENTSA	49-22-15N 23-45-30E	I	4	Complete
DROGOBYCH	49-25-30N 23-34-45E	I	4	Complete
STRYY	49-16-45N 24-43-00E	IV	1	Complete
DYATLOVO Launch Complex				
DYATLOVO	53-32-45N 25-16-45E	I	4	Complete
BEREZOVKA	53-35-30N 25-17-30E	I	4	Complete
ZBLYANY	53-35-15N 25-27-30E	II	4	Complete
GOMEL Launch Complex				
BORKHOV 1	52-18-30N 30-42-45E	II	4	Complete
BORKHOV 2	52-24-45N 30-39-00E	II	4	Complete
GRESK Launch Complex				
GRESK 1	53-14-15N 27-42-30E	I	4	Complete
GRESK 2	53-17-00N 27-40-45E	I	4	Complete
URECHYE	53-11-00N 27-58-30E	II	4	Complete
GROZNYI Launch Complex				
SUNZHENSKOYE	43-08-15N 44-54-15E	I	4	Complete
NESTEROVSKAYA	43-11-30N 44-57-00E	I	4	Complete
ACHKHOV-MARTAN	43-10-30N 45-10-30E	IV	4	Complete
GUSEV Launch Complex				
GUSEV 1	54-41-30N 22-05-00E	I	4	Complete
GUSEV 2	54-44-00N 22-03-30E	I	4	Complete
GVARDEYSK Launch Complex				
GVARDEYSK 1	54-40-30N 21-07-30E	I	4	Complete
GVARDEYSK 2	54-45-15N 21-09-15E	I	4	Complete
JELGAVA Launch Complex				
IECAVA 1	56-35-30N 24-04-00E	II	4	Complete
IECAVA 2	56-39-45N 24-07-30E	II	4	Complete
IECAVA 3	56-33-00N 24-20-30E	IV	4	Complete

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TABLE 4. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
JONAVA Launch Complex				
KARMELAYA	55-57-15N 24-05-45E	II	1	Complete
JONAVA	55-01-00N 24-14-15E	II	4	Complete
KAMENETS-PODOLSKIY Launch Complex				
KAMENETS-PODOLSKIY	48-51-15N 26-42-30E	II	1	Complete
DUNAYEVTSY	48-55-15N 26-58-00E	II	4	Complete
KIVERTSY Launch Complex				
KIVERTSY 1	50-53-15N 25-31-00E	I	1	Complete
KIVERTSY 2	50-56-00N 25-36-15E	I	1	Complete
TROSTYANETS	50-54-30N 25-39-30E	II	1	Complete
KONKOVICH Launch Complex				
PETRIKOV	52-10-30N 28-34-45E	I	4	Complete
KONKOVICH	52-15-30N 28-37-45E	I	4	Complete
KOROSTEN Launch Complex				
KOROSTEN 1	50-51-45N 28-18-15E	II	1	Complete
KOROSTEN 2	50-52-15N 28-31-00E	II	1	Complete
KOZHANOVICH Launch Complex				
KOZHANOVICH 1	52-10-15N 27-51-30E	I	4	Complete
KOZHANOVICH 2	52-11-30N 27-48-00E	I	4	Complete
KRASKINO Launch Complex				
KRASKINO	42-44-00N 130-40-15E	II	1	Complete
KRASNOZNAMENSK Launch Complex				
VIESVILLE	55-01-30N 22-23-00E	I	4	Complete
RAGNIT	55-01-15N 22-11-15E	I	4	Complete
KREMOVO Launch Complex				
KREMOVO (Probable)	44-01-24N 132-20-30E	I	4	Complete
LYALICH (Probable)	44-02-30N 132-26-26E	I	1	Complete
KURGANCH Launch Complex				
KURGANCH 1	39-37-45N 65-57-30E	I	4	Complete
KURGANCH 2	39-37-30N 65-57-00E	I	4	Complete
TYM	39-35-15N 65-42-45E	IV	4	Complete

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TABLE 1. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
LIDA Launch Complex				
LIDA 1	53 47 30N 25 29 30E	I	1	Complete
LIDA 2	53 57 15N 25 27 45E	I	1	Complete
LUTSK Launch Complex				
LUTSK 1	50 46 45N 25 03 00E	I	1	Complete
LUTSK 2	50 50 30N 25 04 15E	I	1	Complete
ALADIMIR VOIYANSKIY	50 48 30N 24 42 30E	IV	1	Complete
MARINA GORKA Launch Complex				
MARINA GORKA	53 26 30N 27 15 30E	II	1	Complete
MAYKOP Launch Complex				
KURDZHIPSKAYA	44 31 45N 40 00 45E	II	1	Complete
SHIRVANSKAYA	44 25 30N 39 54 00E	IV	1	Complete
MOLOSKOVITSY Launch Complex				
MOLOSKOVITSY 1	50 28 45N 29 06 00E	II	1	Complete
MOLOSKOVITSY 2	50 29 30N 29 12 15E	II	1	Complete
GRILEVO	50 25 00N 28 53 15E	IV	1	Complete
MUKACHEVO Launch Complex				
MUKACHEVO 1	48 18 45N 22 30 15E	I	1	Complete
MUKACHEVO 2	48 19 30N 22 37 15E	I	1	Complete
NADYORNA YA Launch Complex				
PARYSICHE	48 37 45N 24 42 00E	I	1	Complete
NOVA YES	48 39 30N 24 48 45E	I	1	Complete
QTYNA	48 47 30N 24 50 30E	IV	1	Complete
OSTROG Launch Complex				
OSTROG 1	50 44 00N 26 43 15E	I	1	Complete
OSTROG 2	50 47 15N 26 41 00E	I	1	Complete
OSTROY Launch Complex				
ASANDVSHCHINA	57 34 45N 28 12 15E	I	1	Complete
SHEVELEVO	57 37 00N 28 12 15E	I	1	Complete
REDKINO	57 24 30N 28 26 00E	IV	1	Mid
PAPLAKA Launch Complex				
PAPLAKA 1	56 24 00N 24 47 30E	I	1	Complete
PAPLAKA 2	56 25 00N 24 46 45E	I	1	Complete
PINSK Launch Complex				
IVANOVO	52 10 45N 25 41 15E	I	1	Complete
MOTOL	52 12 30N 25 44 30E	I	1	Complete

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TABLE 4. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
POLOTSK Launch Complex	55-22-30N 28-44-30E	II	1	Complete
POLOTSK 1	55-24-15N 28-33-45E	II	1	Complete
POLOTSK 2				
POSTAVY Launch Complex	55-09-45N 26-53-45E	II	1	Complete
POSTAVY 1	55-20-30N 26-51-30E	II	1	Complete
KOZYANSY	55-06-15N 27-00-15E	IV	1	Mid
POSTAVY 2				
PRIZHANSY Launch Complex	52-30-30N 24-08-45E	II	1	Complete
PRIZHANSY 1	52-33-30N 24-06-15E	II	1	Complete
PRIZHANSY 2				
RAKVERE Launch Complex	59-08-45N 26-26-45E	II	1	Complete
SIMUNA	59-11-15N 26-20-45E	II	1	Complete
VAIKE MAARJA				
RISTI Launch Complex	59-04-00N 24-04-30E	I	1	Complete
RISTI 1	59-07-45N 24-06-45E	I	1	Complete
RISTI 2				
ROZHDESTVENKA Launch Complex	45-47-15N 133-43-30E	II	1	Complete
ROZHDESTVENKA				
RUZHANSY Launch Complex	52-47-45N 24-42-30E	II	1	Complete
KRU PA 1	52-49-15N 24-45-30E	II	1	Complete
KRU PA 2				
SATEIKIAI Launch Complex	55-59-45N 21-38-45E	I	4	Complete
SALANTAI 1	56-02-15N 21-41-30E	I	1	Complete
SALANTAI 2	56-01-45N 21-54-00E	IV	1	Complete
ZEMAITU KALVARIA				
SIMFEROPOL Launch Complex	44-53-45N 34-20-00E	I	1	Complete
MAZANKA	44-57-00N 34-26-00E	I	4	Complete
BALKI				
SLONIM Launch Complex	52-52-30N 25-21-30E	I	4	Complete
BYTEN 1	52-56-45N 25-22-45E	I	4	Complete
BYTEN 2				
SOKAL Launch Complex	50-22-45N 24-18-45E	I	1	Complete
SOKAL 1	50-27-15N 24-20-00E	I	1	Complete
SOKAL 2	50-20-15N 24-26-15E	IV	1	Complete
SOKAL 3				

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TABLE 1. (Continued)					
LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS	
SOVETSK Launch Complex				Complete	
SLAVSK 1	54-50-45N 21-36-30E	I	4	Complete	
SLAVSK 2	54-50-45N 21-28-30E	I	4	Complete	
SUCHAN Launch Complex				Complete	
NOVITSKOYE	43-01-45N 133-47-00E	I	4	Complete	
SEVERNYI SUCHAN	43-10-00N 133-20-00E	I	4	Complete	
TAURAGE Launch Complex				Complete	
TAURAGE 1	55-40-45N 22-20-30E	I	4	Complete	
TAURAGE 3	55-05-00N 22-20-00E	I	4	Complete	
TORVA Launch Complex				Complete	
TORVA 1	57-56-00N 26-04-00E	I	4	Complete	
TORVA 2	57-59-15N 26-05-00E	I	4	Complete	
TSIRGULINA	57-49-45N 26-12-30E	IV	4	Complete	
UGOLNYY Launch Complex				Complete	
UGOLNYY	64-47-32N 47-56-15E	II	4	Complete	
UKMERGE Launch Complex				Complete	
VEPRIM	55-07-45N 24-38-30E	I	4	Complete	
UKMERGE	55-11-00N 24-42-30E	I	4	Complete	
UMAN Launch Complex				Complete	
MOLODETSKOYE	48-54-45N 30-27-45E	I	4	Complete	
MASKOVKA	48-57-45N 30-23-45E	I	4	Complete	
KISHINTSY	49-00-45N 30-13-45E	IV	4	Complete	
USOVO Launch Complex				Complete	
OVRUCH 1	51-17-45N 28-16-15E	I	4	Complete	
OVRUCH 2	51-18-30N 28-10-30E	I	4	Complete	
LIPNIKI	51-12-45N 28-26-30E	II	4	Complete	
UZHGOROD Launch Complex				Complete	
UZHGOROD	48-33-30N 22-13-45E	II	4	Complete	
VORU Launch Complex				Complete	
VORU 1	57-46-00N 26-47-45E	II	4	Complete	
VORU 2	57-49-00N 26-50-30E	II	4	Complete	
VSELYUB Launch Complex				Complete	
VSELYUB 1	53-45-45N 25-43-00E	I	4	Complete	
VSELYUB 2	53-48-00N 25-46-45E	I	4	Complete	
YELSK Launch Complex				Complete	
YELSK 1	51-42-30N 20-42-30E	I	4	Complete	
YELSK 2	51-47-15N 20-18-15E	I	4	Complete	

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TABLE 4. (Continued)

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LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
ZAGARE Launch Complex	56-23-15N 23-49-45E	I	4	Complete
ZAGARE 1	56-29-00N 23-20-45E	I	4	Complete
ZAGARE 2	56-24-30N 23-36-45E	IV	4	Complete
LIELELEJA				
ZHITOMIR Launch Complex				
ZHITOMIR 1	50-04-45N 28-45-45E	II	4	Complete
ZHITOMIR 2	50-10-00N 28-16-15E	II	4	Complete
BERDICHEV	50-05-30N 28-22-00E	II	4	Complete
ZHMERINKA Launch Complex				
GNIVAN	49-09-00N 28-11-45E	II	4	Complete
ZHMERINKA	49-10-15N 28-05-00E	II	4	Complete
VINNITSA	49-17-30N 28-20-15E	IV	4	Complete
ZNAMENSK Launch Complex				
ZNAMENSK 1	54-32-45N 21-11-15E	I	4	Complete
ZNAMENSK 2	54-35-15N 21-07-30E	I	4	Complete

*TDL site designators have been adopted for MRBM Launch Sites.

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LOCATION*	COORDINATES	NO OF PADLIKE CLEARINGS
ALURSENE Lejascetema	57-15-15N 26-11-15E	4
ANASTASYEVKA Anastasyevka	48-32-15N 135-31-15E	1
BELOKOROVICH Rudnya Zlotinskaya	51-08-30N 27-59-15E	3
BREST Pischeha	51-35-15N 25-16-15E	2
BRODY Yazlovchik Stanslavchik	50-05-15N 25-02-00E 50-07-00N 24-56-30E	1 1
DERAZHNYA Khmelnit'skiy	49-25-00N 27-06-30E	2
DOLINA Berezhnitsa	49-12-15N 23-57-30E	1
DYATLOVO Ruda Yavorskaya 1 Ruda Yavorskaya 2 Ruda Yavorskaya 3	53-23-15N 25-10-30E 53-23-15N 25-12-15E 53-23-15N 25-13-30E	4 5 1
GOMEL Gomel	52-20-15N 30-51-30E	4
GUSEV Tolbingomsk	51-22-15N 22-20-15E	4
GVARDEYSK Germyskoye	51-15-15N 21-25-15E	2
JELGAVA Jelgava 1 Jelgava 2	56-38-15N 23-52-15E 56-41-15N 23-55-15E	2 4
JONAVA Kaisindorys	54-59-30N 24-29-00E	4

25X1

25X1

TOP SECRET

TOP SECRET

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TABLE 5. (Continued)

LOCATION*	COORDINATES	NO OF PADLIKE CLEARINGS
KAMENETS-PODOLSKIY Yarmolint-sy	49-12-00N 26-46-45E	1
KIVERTSY Kivert-sy	50-50-00N 25-25-00E	4
KOROSTEN Lutki Aemilchano	51-01-30N 28-27-45E 50-52-30N 27-55-00E	1 1
KRASNOZNAWENSK Krasnoznamensk Sudargos	51-57-30N 22-35-00E 55-00-30N 22-35-00E	4 4
LIDA Vasili-eki	53-44-00N 21-56-15E	1
MAYKOP Tul-kaya Maykop	49-31-15N 40-14-15E 44-32-30N 39-57-45E	1 3
NADVORNAYA Ivanovt-sy	48-38-00N 21-54-15E	1
OSTROG Shavuta	50-46-45N 26-57-45E	2
POLOTSK Plissa	55-12-30N 28-01-45E	3
POSTAVY Sist-sy Bogdanovo	55-09-30N 26-55-45E 54-57-15N 26-28-45E	1 4
PRUZHANSKY Strigovo Shcherby	53-23-15N 24-14-30E 52-23-00N 24-10-00E	4 4
RUZHANSKY Shchitno 1 Shchitno 2	52-43-15N 24-58-15E 52-41-00N 24-57-30E	4 4
SATEIKHAI Tel-siai Al-sedzini	55-56-45N 22-07-00E 56-00-15N 22-06-00E	4 4

25X1

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TOP SECRET

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25X1A

TABLE 5. (Continued)

25X1D

LOCATION*	COORDINATES	NO OF PADLIKE CLEARINGS
SMORGON Smorgon	54-34-45N 26-21-30E	2
TAURAGE Skautvile Taurage	55-23-00N 22-31-00E 55-10-00N 22-14-30E	4 2
TORVA Valga	57-50-45N 25-54-15E	1
UKMERGE Gelva Balninkai	55-07-15N 24-43-45E 53-13-00N 25-02-00E	1 1
YELSK Yelsk	51-50-45N 29-05-45E	1
ZAGARE Dobele 1 Dobele 2	56-40-00N 23-11-45E 56-40-45N 23-06-45E	4 1
ZHITOMIR Berdichev	49-51-00N 28-25-30E	2
ZHMERINKA Vinnitsa	48-13-15N 28-18-45E	3
ZNAMENSK Pradinsk Domnovo	51-23-00N 20-59-45E 51-25-30N 20-53-00E	3 1

*TDI site designators have been adopted for the fixed field sites, which are listed under the nearest permanent IRBM MRBM complex.

25X1

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TOP SECRET

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.25X1

TABLE 6. COMPOSITION OF IRBM/MRBM COMPLEXES

No of Complexes	Containing Soft Sites Only				Containing Hard Sites Only			Containing Hard and Soft Sites		
	One Site, No Housing or Support Facility	One Site	Two Sites	Three Sites	One Site	Two Sites	Three Sites	Two Soft One Hard Site	One Soft One Hard Site	One Soft Two Hard Sites
IRBM	4			2				1		
	2				1	1	3			
	5									
	5									
MRBM	5									
	43	1	36	6				20	1	
	21									
TOTALS	85	9	1	36	8	1	3	21	1	4

.25X1

.25X1

TOP SECRET

TOP SECRET